First Aid

Emergency care for the injured

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First Aid

This book covers in depth all topics required for a standard first aid course, and also includes a section on advanced topics. The basics covered include:

- Primary assessment and CPR
- Legal aspects of first aid, including negligence and consent
- Circulatory emergencies, such as bleeding, heart attack and stroke
- Respiratory emergencies, such as asthma and anaphylactic shock
- Internal injuries, such as broken bones, chest injuries, and internal bleeding
- Burns, seizures and other medical conditions

In the chapter on advanced topics, you'll find information about oxygen administration and airway management; AED operation and wilderness techniques; additional assessments and triage.

The intended audience is taking a first aid course from a certified instructor, and can read at a high school level. Please be advised that there are some images of the injuries and conditions discussed.

This is a wiki, so *you can edit this book*; if you find a mistake, please **be bold** and fix it. If you want to leave comments, please do so on the talk page for that module. If you want to help out even more, take a look through What needs to be done? for tasks that still need to be done, or start with whatever tasks you stumble across.

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Source: http://en.wikibooks.org/w/index.php?title=First_Aid&oldid=1343486

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Introduction

First Aid/Authors

Among many others:

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- Mike6271 (talk | email | contribs)
- Firefighter04 (talk | email | contribs)
- ChopStick (talk | email | contribs)
- Owain.davies (talk | email | contribs)
- Nugger (talk | email | contribs)
- Geoff Plourde (talk | email | contribs)

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Authors&oldid=1333186

Principal Authors: Mike.lifeguard, Geoff Plourde, Mike6271

First Aid/How To Read This Book

Internationally-recognized standards

Regional Note
Where there is a regional departure from the protocols in the main text, they're noted in a box like this.

This book is international in nature - we've tried to use internationally-recognized standards as much as possible. For more information on how standards are developed and implemented, see Appendix B: Behind the Scenes. Where required, we've added regional notes to highlight regional differences.

Boxes highlight important information

Caution
This type of box highlights areas where additional caution is needed.

Don't do this!
This type of box shows the reader a common mistake or something that could harm the victim.

Best Practice
These boxes highlight a technique commonly used because it's the best (or one of the best) ways of doing things, or it is something important to remember

Summaries make studying easy

Summaries are available for the following modules:

- The entire BLS/CPR chapter is summarized (without regional modifications) here

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/How_To_Read_This_Book&oldid=1164336

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First Aid/What Is First Aid?

What is First Aid?

First aid is the provision of immediate care to a victim with an injury of illness, usually effected by a lay person, and performed within a limited skill range. First aid is normally performed until the injury or illness is satisfactorily dealt with (such as in the case of small cuts, minor bruises, and blisters) or until the next level of care, such as an ambulance or doctor, arrives.

Guiding principles

The key guiding principles and purpose of first aid, is often given in the mnemonic "3 Ps". These three points govern all the actions undertaken by a first aider.

- **P**revent further injury
- **P**reserve life
- **P**romote recovery

Limitations

First aid sign in Germany.

The nature of first aid means that most people will only have a limited knowledge, and in emergency situations, first aiders are advised to FIRST seek professional help. This is done by calling, or assigning an able bystander to call, an emergency number, which is 9-1-1 in many places. There is no worldwide common emergency number. The European Union has established 1-1-2 as the universal emergency number for all its member states. The GSM mobile phone standard designates 1-1-2 as an emergency number, so it will work on GSM systems to contact help, even in North America. In the United Kingdom and Republic of Ireland, the numbers 999, 112 and 911 all work in parallel. In emergency situations, it is important that the responder seek help immediately, seeking professional help by other means, if telephone contact is unavailable. The risks of inadvertently doing further injury to a victim, and/or the responder sustaining injury themselves while applying aid, can often outweigh the benefits of applying immediate treatment.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/What_Is_First_Aid?&oldid=1322976

Principal Authors: Mike.lifeguard, Mouse is back, Firefighter04

First Aid/First Aid Training

First Aid Training

Reading this manual is no substitute for hands-on first aid training from an instructor qualified by a recognized organization.

Training programs vary from region to region, and we will highlight some of the main programs here.

North America

- **Lifesaving Society**: The LSS, Canada's lifeguarding expert, provides first aid training geared toward both lifeguards and public
- **Red Cross**: The RC has been a leading first aid training organization throughout North America
- **St. John Ambulance**: provides first aid courses to the public, as well as more advanced training
- **Canadian Ski Patrol**: provides first aid training for their ski patrollers as well as the public
- **Heart and Stroke Foundation of Canada**
- Corporate training programs: there are various corporations which provide their own programs
- Many ambulance and fire services offer basic first aid courses to those who are interested, contact your local Emergency Services Station for more information.

United Kingdom

- **British Red Cross**: The British Red Cross is part of the worldwide organization, and provides personal and commercial first aid training
- **St John Ambulance**: SJA is the other main voluntary provider of first aid training in the UK

Professional Levels Beyond First Aid

Professional pre-hospital care is provided by local or regional Emergency Medical Services. It is feasible for interested persons to undertake further training. Higher levels of training include:

- First Responder - The first responder level is often aimed at professionals, such as police officers, although in some areas, laypersons can become first responders, designated to reach emergencies before an ambulance
- Emergency Medical Technician - Most ambulance services worldwide qualify their staff as EMTs or an equivalent. The additional skills they have vary between services, however most cover areas such as more advanced spinal care, resuscitation and patient handling. In many countries, first aiders can attain this level of training through voluntary organizations or through private training.
- Paramedic - Paramedics are often the most highly qualified of the ambulance personnel, usually with a range of intravenous drugs and items such as intubation kits. It is unlikely that any non-professional could achieve paramedic level. In many countries, the title is

protected, meaning that an unqualified person calling themselves a paramedic could face prosecution.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/First_Aid_Training&oldid=1164329

Principal Authors: Mike.lifeguard, Nugger

Issues in providing care

First Aid/Consent

Importance

☆ Best Practice
First aiders should always err towards treating a victim. Your actions may be covered by a Good Samaritan Law, and where this does not apply, most countries give much leeway to those acting in good faith.

Most people and cultures involve a certain amount of respect for a person's personal space. This varies with cultural and personal attitude, but touching another person is generally considered to be rude, offensive or threatening unless their permission is gained.

As most first aid treatment does involve touching the victim, it is very important that the first aider gains their permission, so as to avoid causing offense or distress. In most jurisdictions, it may be considered battery if a first aider touches the victim without permission.

Gaining consent

The simplest way to gain consent is to ask the victim if they will allow you to treat them. Talk to the victim, and build up a rapport with them. During this conversation, it is important to identify the following key points:

- **Who you are** - Start with your name, and explain that you are a trained first aider
- **Why you are with them** - They are likely to know they have an injury or illness (although you can't always assume this in the case of patients in emotional shock, children or those with learning difficulties), but explain to them that you would like to help with their injury or illness
- **What you are going to do** - Some first aid procedures can be uncomfortable (such as the sting which accompanies cleaning a wound with saline), so it is important to be honest with the patient about what you are doing, and if necessary, why it is important.

Implied consent

There are some cases where you can assume that the victim gives their consent to you treating them. The key, unequivocal reason for assuming consent is if the patient:

- **Is unconscious**
- **Has a very reduced level of consciousness**

In these cases, you can perform any reasonable treatment within your level of training, and your position is protected in most jurisdictions.

Judgment of consent

There are also some cases where the first aider may have to exercise a level of judgment in treating a victim who may initially refuse. Cases like this include when the victim is:

- **Intoxicated**
- **Irrational** (i.e. delusional, insane or confused due to the injuries)
- **A minor** (parent or guardian must give consent if present and able; otherwise consent is implied)
- **Suffering from learning difficulties**

In these judgment cases, the first aider must make a decision, even if the victim is refusing treatment. If this occurs it is very important to make a note of the decision, why it was taken, and why it was believed that the person was unfit to refuse treatment. It is advisable to summon professional medical assistance if you believe the victim should be treated and is refusing, as medical professionals are experienced in dealing with people reluctant to accept treatment.

Other influences of consent

Wishes of relatives

In some cases, relatives may object to the treatment of their relative. This can be a problematic area for the first aider, with several important factors to be considered.

In the first instance, it may not be any decision of the relative to choose to consent to first aid treatment. In most countries, the only time this decision can be definitively taken is if the person requiring treatment is a child.

In other cases, the presumption for the first aider must be towards treating the victim, especially if they are unconscious .

The other main consideration is if the person claiming to refuse consent on behalf of the victim is in fact a relative, or if they have the victim's best interests at heart. In some cases, the person may have caused harm to the victim. If in this case, you fear for your safety, or the person becomes aggressive, you should look after your own safety as a priority, and call for assistance from the police.

Advance directive

Some victims may have a statement recorded, called an advanced directive or living will, that they do not wish to be treated in the case of life threatening illness. This can be recorded on a piece of paper, or on wearable items such as a bracelet.

The legal force of these items may vary widely between countries. However, in the majority of cases they should follow a certain format, and be countersigned by a solicitor or notary public.

In any case, as suggested above, the first aider should always presume towards treating a victim, allowing health care professionals to make the final decision. Almost every first aid treatment will only extend life, rather than definitively save it, meaning you are usually not breaking the advance directive. This includes actions such as CPR, which simply extend the time until which definitive treatment will work - usually delivered by a health care professional, who can make their own clinical decision on any advance directive.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Consent&oldid=1164320

Principal Authors: Mike.lifeguard, Owain.davies, Mike6271

First Aid/Protective Precautions

Awareness of Danger

The first thing that any first aider should be aware of when entering a situation is the potential for danger to themselves. This is especially important in first aid, as situations which are dangerous are the most likely to produce casualties who require first aid.

Danger can consist of:

- **Environmental danger** - A danger in the surroundings, such as falling masonry, broken glass, fast vehicles or chemicals.
- **Human danger** - Danger from people at the scene (including the victim) which can be intentional or accidental.

Barrier Devices

Keeping yourself protected is the first priority of any first aider. The key skill for this is awareness of your surroundings and the changing situation.

Once you are aware of the hazards, you can then take steps to minimize the risk to oneself. One of the key dangers to a first aider is bodily fluids, such as blood, vomit, urine and feces, which pose a risk of cross contamination. Body fluids can carry infections and diseases, including, but not limited to, HIV and hepatitis.

Gloves

A Purple Nitrile Glove

The main tool of the first aider to avoid this risk is a pair of impermeable gloves. Gloves protect the key contact point with the victim (i.e. the hands) and allow you to work in increased safety. They protect not only from bodily fluids, but from any dermatological infections or parasites that the victim may have.

The first thing a first aider should do when approaching, or on their way to, a victim is to put on their gloves.

Remember **GO** to the victim (Gloves On) They are generally of three types:

- **Nitrile** - These gloves can come in any color (often purple or blue) and are completely impermeable to bodily fluids. These are the gloves most recommended for use during victim contact. This material is also rated for dealing with chemical spills. If you ever need to deal with chemical burns, these are the gloves to use (you can brush off dry chemicals with gloved hands if you use nitrile). Nitrile gloves, however, are also the most expensive.
- **Latex** - Usually white gloves, often treated with powder to make them easier to get on or off. These are not used as widely as they once were due to a prevalence of allergies to latex. Latex allergies are rarely life-threatening; if you must use latex gloves, ask the victim if they have a severe allergy to latex.
- **Vinyl** - Vinyl gloves are found in some kits, although they should not be used for contact with body fluids, though they are far better than nothing. They should primarily be used for touching victims who do not have external body fluids due to the glove's high break rate. For this reason, some organizations recommend they are not kept in first aid kits due to the risk of confusion.

CPR Adjunct

A CPR pocket mask, with carrying case

The other key piece of protective equipment that should be in every first aid kit is an adjunct for helping to perform safe mouth-to-mouth resuscitation.

With mouth-to-mouth resuscitation, there is a high probability of bodily fluid contact, especially with regurgitated stomach contents and mouth borne infections. A suitable mask will protect the rescuer from infections the victim may carry (and to some extent, protect the victim from the rescuer). It also makes the performance of CPR less onerous (not wishing to perform mouth to mouth is a key reason cited for bystanders not attempting CPR).

CPR adjuncts come in a variety of forms, from small keyrings with a nitrile plastic shield, up to a fitted rescue 'pocket mask' such as the one pictured.

Other equipment

Larger first aid kits, or those in high risk areas could contain additional equipment such as:

- **Safety glasses** - Prevents spurting or pooled fluid which could splay from coming in contact with the eyes.
- **Apron or gown** - Disposable aprons are common items in larger kits, and help protect the rescuers clothing from contamination.
- **Filter breathing mask** - Some large kits, especially in high risk areas such as chemical plants, may contain breathing masks which filter out harmful chemicals or pathogens. These can be useful in normal first aid kits for dealing with victim who are suffering from communicable respiratory infections such as tuberculosis.

Often times, all of these will be included as a part of a larger kit. The kit should have a list of instructions on how to properly don/don off the equipment. Follow these instructions to prevent an accidental exposure.

Improvisation

Many first aid situations take place without a first aid kit readily to hand and it may be the case that a first aider has to improvise materials and equipment. As a general rule, some help is better than no help, especially in critical situations, so a key first aid skill is the ability to adapt to the situation, and use available materials until more help arrives.

Some common improvisations include:

- Gloves → plastic bags, dish gloves, leather work gloves (wash your hands with soap and water especially well after using these)
- Gauze → clean clothing (but not paper products)
- Splints → straight sections of wood, plastic, cardboard or metal
- Slings → the victim's shirt's bottom hem pinned to the center of their chest will immobilize a forearm nicely

Improvised care for bleeding.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Protective_Precautions&oldid=1192964

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First Aid/Legal Liability

Good Samaritan Laws

☆ Best Practice
All rescuers should not be afraid of liability affecting them whilst performing their duties. In many cases, it is often best to provide care and to do so to the best of your ability without worry of legal implications.

Good Samaritan laws in the United States and Canada are laws that reduce the liability to those who choose to aid others who are injured or ill, though it does not protect you from being sued, it just significantly reduces your liability. Ontario's *Good Samaritan Act* [1] is one example of such legislation. They are intended to reduce bystanders' hesitation to assist, for fear of being prosecuted for unintentional injury or wrongful death. In other countries (as well as the Canadian province of Quebec), Good Samaritan laws describe a legal requirement for citizens to assist people in distress, unless doing so would put themselves in harm's way. Citizens are often required to, at minimum, call the local emergency number.

Check with your government for applicable legislation in your area. Typically, the Good Samaritan legislation does not cover an individual who exceeds their training level or scope of practice; nor would you be protected against gross negligence.

General guidelines

1. Unless a caretaker relationship (such as a parent-child or doctor-patient relationship) exists prior to the illness or injury, or the "Good Samaritan" is responsible for the existence of the illness or injury, no person is required to give aid of any sort to a victim.
2. Any first aid provided must not be in exchange for any reward or financial compensation. As a result, medical professionals are typically **not** protected by Good Samaritan laws when performing first aid in connection with their employment.
3. If aid begins, the responder must not leave the scene until:
   - It is necessary in order to call for needed medical assistance.
   - Somebody of equal or higher ability can take over.
   - Continuing to give aid is unsafe (this can be as simple as a lack of adequate protection against potential diseases, such as vinyl, latex, or nitrile gloves to protect against blood-borne pathogens) — a responder can **never** be forced to put himself or herself in danger to aid another person.
4. The responder is not legally liable for the death, disfigurement or disability of the victim as long as the responder acted rationally, in good faith, and in accordance with their level of training.

Negligence

Negligence requires three elements to be proven:

Duty of care

> You had a duty to care for the victim
>
> Often, if you begin first aid, then a duty of care exists

Standard of care was not met

You didn't perform first aid properly, or went beyond your level of training

The standard of care is what a reasonable person with similar training would do in similar circumstances

Causation

The damages caused were your fault

Causation requires proof that your act or omission caused the damages

Assisting with Medications

Assisting with medications can be a vital component during a medical emergency. Assisting with medications includes helping the victim locate the medication, taking the cap off of a bottle of pills, and reading the label to ensure that the victim is going to take the right medication. Assisting, however, *does not* imply actually administering the medication -- this is an advanced level skill, which, if done, may open you up to liability from going beyond your level of training. However, by assisting, you may be able to help the victim find their medications more quickly, resulting in an improved outcome.

External links

[1] `http://www.canlii.org/on/laws/sta/2001c.2/20071015/whole.html`

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Legal_Liability&oldid=1219235

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First Aid/Critical Incident Stress & Victim Death

What is Critical Incident Stress?

Any emergency that involves a severe injury or death is a critical incident. This incident could be amplified should the emergency involve a family member or friend. The stress that these incidents cause may overwhelm a first aider and shut down their ability to cope. This is what is known as critical incident stress (CIS). This condition may have a great impact on the first aider suffering from it, and if left un-treated, this stress may lead to a more serious condition known as post-traumatic stress syndrome.

Signs of CIS

- May not perform well at their job.
- May seem pre-occupied.
- Confusion
- Poor concentration
- Denial
- Guilt

- Anger
- Change in appetite
- Unusual behaivior

Treatment

CIS requires professional help to avoid Post-Traumatic Stress Syndrome. However, there are supplements to professional treatment that will help such as:

- Relaxation techniques
- Avoiding drugs and alcohol
- Eating a balanced diet
- Getting enough rest
- Talking with peers

More information can be found at the International Critical Incident Stress Foundation `http://www.icisf.org/`

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Critical_Incident_Stress_&_Victim_Death&oldid=1165985

Principal Authors: Mike.lifeguard, Mike6271, Nugger

First Aid/Abuse & Neglect

Don't do this!
Never confront any suspected abusers. **Never** judge whether or not a complaint is true or not. Always treat any complaint in a serious manner.

Abuse: is when a person's well-being is deliberately and intentionally threatened. In some jurisdictions, if you are a health care provider then you may be obligated to report abuse or neglect that you observe. In particular, if you are in any position of authority in relation to a child, you are likely required by law to report child abuse.

If you are not under a professional duty of care, it is strongly recommended that you report any instances of suspected abuse. Stick to reporting the facts, and let the authorities determine the truth of any suspicion. Never confront the potential abuser yourself - consider your own safety.

The most vulnerable groups are the young and elderly, but be aware of the potential for abuse in all people (such as abuse of a spouse of either gender).

Physical abuse

> abuse involving contact intended to cause pain, injury, or other physical suffering or harm

Emotional abuse

> a long-term situation in which one person uses his or her power or influence to adversely affect the mental well-being of another. Emotional abuse can appear in a variety of forms, including rejection, isolation, exploitation, and terror.

Sexual abuse

is defined by the forcing of undesired sexual acts by one person to another.

Neglect

a category of maltreatment, when there is a failure to provide for the proper physical care needs of a dependent.

Some forms of abuse may be more obvious such as physical abuse but the rest may be concealed depending on the victim. If you notice any whip marks, burns, bruises with an unexplained origin, slap marks, bite marks, etc., you may suspect abuse.

If the person's life is in immediate danger then you should contact emergency medical services. As a first aider you are in a good position to do this without suspicion - if questioned you should state that you believe the victim requires further treatment. If possible, you should request police assistance, although not if you are in the presence of the suspected abuser. To help with this, some ambulances operate a safeword system (usually for their crews) which can be entered in to the call to flag an abuse query. These are not widely published (to protect their usage), but if you work for a recognized organization, they may be willing to share this word with you or your group.

If the person's safety is not in immediate danger, you should contact your local government department which deals with accusations of abuse, which may vary within locations by the demographics of the person being abused (child, elder, learning difficulties etc.). If in doubt, contact your local police, who should be able to signpost you to the most appropriate service.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Abuse_&_Neglect&oldid=1164300

Principal Authors: Firefighter04, Mike.lifeguard, Owain.davies, Mike6271

Primary assessment & basic life support

First Aid/Emergency First Aid & Initial Action Steps

Primary Assessment

Protecting yourself

First aiders are **never** required to place themselves in a situation which might put them in danger. Remember, you cannot help a victim if you become a victim yourself.

When a first aider is called upon to deal with a victim, they must always remember to safeguard themselves in the first instance and then assess the situation. Only after these steps are completed can treatment of the victim begin.

When called to a scene, remember that personal safety is paramount. Before you enter a scene, put on personal protective equipment, especially impermeable gloves.

As you approach a scene, you need to be aware of the dangers which might be posed to you as a first aider, or to the victim. These can include obviously dangerous factors such as traffic, gas or chemical leaks, live electrical items, buildings on fire or falling objects. While many courses may focus on obvious dangers such as these, it is important not to neglect everyday factors which could be a danger. *(ex. Gas fires, where in getting close to a victim could result in burns from the heated vapor.)*

There are also human factors, such as bystanders in the way, victim not being co-operative, or an aggressor in the vicinity who may have inflicted the injuries on the victim. If these factors are present, have the police called to control the situation.

Always remember the big **D** for Danger.

Once you have made your first assessment for danger, you should continue to be aware of changes to the situation or environment throughout your time with the victim.

If there are dangers which you cannot mitigate by your actions (such as falling masonry), then STAY CLEAR and call the emergency services. Remember to **never put yourself in harms way**.

What has happened?

As you approach, try to gain as much information as possible about the incident. Try and build a mental picture to try and help you treat the victim.

Assess the **Scene** - Where are you? What stores, clubs, public buildings, etc. are nearby? Has anything here caused the injury? What time of day is it?

Get some **History** - If there are witnesses, ask them what's happened "Did you see what happened here?" and gain information about how long ago it happened "How long have they been like this?", but start your assessment and treatment of the victim while you are doing this.

Be sure to **Listen** - While working on a victim you may overhear information from witnesses in the crowd. An example of this would be an old man falling on the sidewalk, as you approach the scene you can hear someone say "He was just walking and his legs went out from under him." But you may not see the person saying this. Everything should be taken into account should no witnesses want to become involved or you cannot ask questions. Note what is said and continue treatment.

Responsiveness

Once you are confident that there is minimal danger to yourself in the situation, the next key factor is to assess how responsive the victim is.

This can be started with an initial responsiveness check as you approach the victim. This is best as a form of greeting and question, such as:

"Hello, are you alright?"

The best response to this would be a victim looking at you and replying. This means that the victim is Alert.

Victims can be quickly assessed and prioritized on the **AVPU** scale, and this will help make decisions about their care. The scale stands for Alert, Voice, Pain, and Unresponsive.

If the victim looks at you spontaneously, can communicate (even if it doesn't make sense) and seems to have control of their body, they can be termed **Alert**.

Key indicators on the victim are their:

- **Eyes** - Are they open spontaneously? Are they looking around? Do they appear to be able to see you?
- **Response to voice** - Do they reply? Do they seem to understand? Can they obey commands, such as "Open your eyes!"?

If the victim is not alert, but you can get them to open their eyes, or obey a command by talking to them, then you can say that they are responsive to **Voice**

If a victim does not respond to your initial greeting and question, you will need to try and get a response to pain from them.

The word "pain" is a bit misleading - it refers to any physical stimulus. The first stimulus to use is a tap/shake of the shoulder. There are other, more painful stimuli that can be employed should this be unsuccessful, but all of these have their downsides, especially if overused.

Of these, the three most commonly used ones are:

- **Sternal rub** - This involves digging your knuckle in to the sternum, or breastbone, of the victim (between the nipples).

- **Nail bed squeeze** - Using the flat edge of a pen or similar object, squeeze in to the bottom of the victim's fingernail (hard).
- **Ear lobe squeeze** - using thumb and forefinger, squeeze the victim's ear hard.

If any of these provoke a reaction (groaning, a movement, fluttering of the eyes), then they are responsive to pain. It is important to note that different trainers have different opinions on these, so ask your trainer before employing any of these on a first aid course.

Any of the responses A, V or P, mean that the victim has some level of consciousness. If they are not alert, you should *always* summon professional help - call an ambulance.

If they are only responsive to Voice or Pain, then consider using the **Recovery position** to help safeguard them.

If they do not respond to voice or pain, then they are **Unresponsive** and you must urgently perform further checks on their key life critical systems of breathing and circulation (ABCs).

Summary

To this stage the first aider, on approaching a victim should have:

- **GO** - Put their gloves on
- **D** - Checked for danger
- **R** - Checked for responsiveness
- **S** - Looked at the scene for clues about what has happened
- **H** - Gained history on the incident
- **AVPU** - Assessed to see how responsive the victim is.

This can be remembered as the mnemonic **"Go DR SHAVPU"** (Go Doctor Shavpu)

Next Steps

If the victim is unconscious, the first aider should immediately **call an ambulance** - you will need professional help regardless of whether they are breathing or not. Waiting would endanger the victim's life unnecessarily. If you are alone with an adult victim, call immediately, even if you must leave the victim. Placing them into the recovery position will safeguard their airway against aspiration if they should vomit while you are calling the ambulance. If you are alone with a child, continue your primary assessment; you will call once you have confirmed that the victim is breathing, or after 2 minutes of CPR. If you are not alone, have your bystander call the ambulance immediately while you continue your assessment and care of the victim.

If there is more than one person injured the rescuer must determine the order in which victims need care. In general, rescuers should focus on the victim with the injury that is the greatest threat to life. Simple triage techniques should be applied to make sure that those in greatest need of care receive support quickly.

Treatment

The last step is to actually provide care to the limits of the first aider's training -- *but never beyond*. In some jurisdictions, you open yourself to liability if you attempt treatment beyond your level of training.

Treatment should always be guided by the 3Ps:

Preserve life

Prevent further injury

Promote recovery

Treatment obviously depends on the specific situation, but all victims must receive some level of treatment for shock. The level of injury determines the level of treatment for shock which is required, but all victims will require it.

The principles **first, do no harm** and **life over limb** are essential parts of the practice of first aid. Do nothing that causes unnecessary pain or further injury unless to do otherwise would result in death.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Emergency_First_Aid_&_Initial_Action_Steps&oldid=1311321

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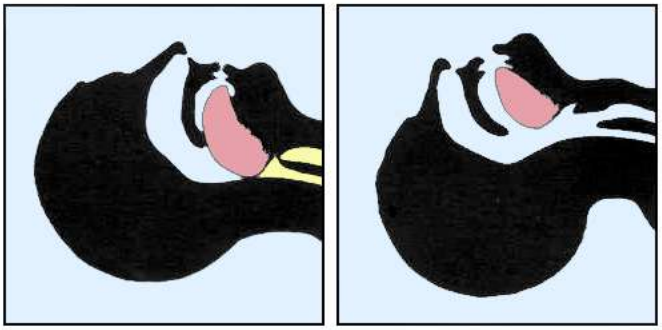
First Aid/A for Airway

A for Airway

The airway of the human body is one of the more important parts to be checked when providing first aid. The airway is the entrance point of oxygen and the exit point of carbon dioxide for the body. Should this become blocked, respiratory arrest or cardiac arrest (if left un-treated) may occur.



The head-tilt chin-lift opens the airway safely and effectively.

An unconscious person's airway may be blocked when their tongue relaxes and falls across the airway. The technique used to open the airway is called the "head-tilt chin-lift" technique. The victim must be supine (lying on their back). With one hand on the forehead and the other hand under the chin, the victim's head is tilted back, and their chin lifted. The victim's jawline should be perpendicular to the ground.

Conscious victims can normally maintain an open airway; if the victim is talking or has no respiratory distress, their airway is adequate.

You may also check the airway for visible, removable obstructions in the mouth, which you could remove with a finger. You can remove any item in the mouth which is removable, but should not waste time trying to remove lodged items such as dentures.

If a conscious victim's airway is obstructed by a foreign object, the object must be removed. Abdominal thrusts are the standard method for conscious victims. Refer to Obstructed Airway for unconscious procedures.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/A_for_Airway&oldid=1173276

Principal Authors: Mike.lifeguard, Mike6271, Nugger

First Aid/B for Breathing

Principles

Human respiration works by inspiring fresh air, absorbing part (but not all) of the oxygen in it, which is then distributed to the cells by the blood, and exchanging carbon dioxide. Lungs have a capacity of a dozen of liters.

When a victim stops breathing, spontaneous respiration can restart if stimulated by insufflations. However, a victim in respiratory arrest is likely to fall into *cardio-respiratory* arrest.

Checking the respiration

Regional Note
In some areas, trainers advocate calling emergency medical services as soon as you find a patient unconscious ("*call first*"), but the ILCOR protocol is to call EMS once you determine whether the victim is breathing or not ("*call fast*"). This ensures that the correct priority is given to your call. You should summon an ambulance in either case if the patient is unconscious.

After opening the victim's airway, check for breathing. To do this, place your cheek in front of the victim's mouth (about 3-5 cm away) while looking at their chest. You can also gently place a hand on the centre of the victim's chest if you wish. You may be able to detect the following signs if the victim is breathing:

1. Feel the airflow on your cheek
2. Hear the airflow
3. See the chest rise and fall
4. Smell the breath of the victim
5. Feel the chest rise and fall under your hand (if you have placed it on the chest)

Search for these signs for 10 seconds. If there is no breathing, you must start CPR.

Calling For Help

If a bystander has not already summoned assistance, then you must at this point call the Emergency Medical Service or Ambulance Service.

If an ambulance is required, get someone else to call if possible. If you're alone, make the call yourself:

- Europe: 112
- USA & Canada: 911

- Australia: 000
- United Kingdom: 999

You will need to give the emergency services:

- Your exact location
- Nature of the incident
- Services you require
- A telephone number you can be contacted back on (for instance, if they have difficulty finding you)

In some cases, they will run through a list of questions with you, in order to help prioritise your call properly. They may also ask the name and details of the caller. Sometimes, the victim must be left alone while the first aider leaves to seek help for them. If the victim is unconscious they should be left in the recovery position so that they do not choke to death if they should vomit while left unattended. Whilst ordinarily, if a spinal injury is suspected, it is advised not to move the casualty, if they are unconscious and need leaving alone, it is essential that the recovery position is employed anyway. There are alternative methods for safer positioning available to those with more advanced training.(See Suspected Spinal Injury for more information.)

Rescue Breaths

Regional Note
In Europe, give 5 rescue breaths for victims of: • Drowning • Trauma • Drug overdose For other victims, begin with compressions instead of rescue breaths.

Rescue breaths must be provided to victims in a state of respiratory arrest; *do not* provide them to a weakly breathing victim. If you cannot detect the breath of the victim, begin CPR.

If you have a CPR mask, use it to protect yourself and the victim from exchange of body fluids. Cheap, keyring-sized CPR masks are available in most pharmacies. Make sure you read the instructions for how to use any equipment you buy. However, chances are that you will find yourself unequipped; do your best with what you have, but do not place yourself in danger by direct contact with body fluids, such as blood - proceed to compressions only.

Start by giving two rescue breaths.

- Maintain an open airway using the head-tilt chin-lift
- Plug the nose of the victim with your free hand
- Put your mouth on the mouth of the victim in an airtight manner, and blow into the mouth of the victim, do not blow forcefully as this may cause the air to enter the stomach, which will cause vomiting, the best way to avoid this is to blow air into the mouth just enough to make the chest rise
- Let the air exit, and give another breath

Continue with CPR compressions.

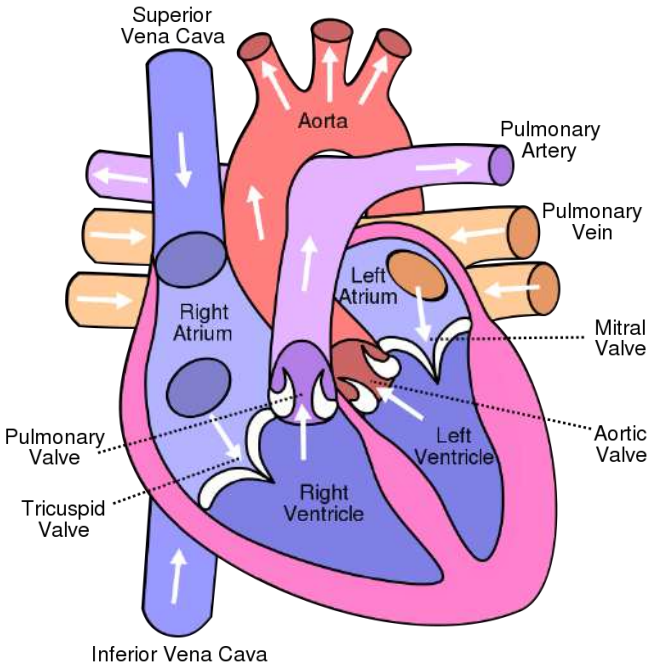
Source: http://en.wikibooks.org/w/index.php?title=First_Aid/B_for_Breathing&oldid=1164312

Principal Authors: Mike.lifeguard, Owain.davies, Nugger, Mike6271, Chris.rigby.69

First Aid/C for Compressions

Principles

The purpose of doing chest compressions is to effectively squeeze the heart inside the victim's chest, causing blood to flow. This allows the normal gaseous exchange between the lungs, bloodstream and tissues to occur. Compressions are now usually performed before any rescue breaths due to the fact that when normal breathing and circulation stop, there is still a good amount of residual oxygen left in the bloodstream (as it has no way to exchange out of the body).



Schematic of the human heart.

Technique

The aim is always to compress in **the center of the chest**, regardless of the victim. This means that compressions are performed on the sternum or breastbone of the victim, approximately in line with the nipples on males and children.

Compressions for infant CPR are done with two fingers.

- **For adults (>8)** - place the palm of one hand in the centre of the chest, approximately between the nipple line (on adult males - for females, you may need to approximate the ideal position of this line due to variations in breast size and shape). Bring your other hand to rest on top of the first hand, and interlock your fingers. Bring your shoulders directly above your hands, keeping your arms straight. You should then push down firmly, depressing the chest to about one third (1/3) of its depth.
- **For children (1-8)** - place the palm of one hand in the centre of the chest, approximately between the nipple line. Bring your shoulder directly above your hand, with your arm

straight, and perform compressions to one third (1/3) the depth of the chest with one arm only.

- **For infants (<1yr)** - Use your forefinger and middle finger only. Place your forefinger on the centre of the child's chest between the nipples, with your middle finger immediately below it on the chest, and push downwards using the strength in your arm, compressing the chest about one third (1/3) of it's depth.

Give 30 compressions in a row, and then two (2) rescue breaths.

Then restart your next cycle of compressions

Making compressions effective

You MUST allow the ribs to come all the way back out after each compression, followed by a brief pause. This allows the heart's chambers to refill. Spacing compressions too close together will lead to them being ineffective.

You are aiming for a rate of 100 compressions per minute, which includes the time to give rescue breaths. In practice, you should get just over 2 cycles of 30 compressions in along with breaths per minute.

Almost everyone compresses the chest too fast - Experience shows that even well trained first aiders tend to compress the heart too fast. The rate you are aiming for is only a little over one per second. The best equipped first aid kits should include a Metronome with an audible 'beep' to match your speed to. Many public access defibrillators have these included in their pack. If one is not available, count the number of compressions with the word 'and' between them. When you press down on the chest, say the number, when the chest rises say 'and'. this way, you will be saying 'one-and-two-and-three...'

Keep your arms straight - A lot of television and films show actors 'performing CPR' bending their elbows. This is not correct - you should always keep your arms straight, with your elbows locked and directly above your hands.

It often helps to count out loud - You need to try and get 30 compressions per cycle, and it helps to count this out loud or under your breath. Performing compressions is tiring, and you may not be able to count out loud for the duration, but ensure you keep counting.

If you lose count, don't stop, just estimate - It is important to carry on once you've started, so if you lose count, don't panic, and simply estimate when 30 compressions is over, and do 2 breaths, then start over counting again.

You are likely to break ribs - When performed correctly, especially on older people, compressions are more likely than not to break ribs or the sternum itself. You should carry on regardless of this occurring. It is a sign that you are performing good, strong compressions. Oftentimes the cracking sound you will hear is just the cartilage of the ribs and sternum breaking, and not the bones themselves. If bystanders are concerned about injury to the victim, you may want to remind them of the *life over limb* principle and assure them that it is normal to hear these sounds.

When to Stop

You should continue giving the victim CPR until:

- **The victim starts breathing spontaneously** - This does not include gasping, called *agonal breathing*. Victims are also likely to make sighing noises or groans as you perform chest compressions - this should not be mistaken for breathing.
- **The victim vomits** - This is an ACTIVE mechanism, meaning the victim moves and actively vomits. Not to be confused with regurgitation, where stomach contents make their way passively in to the mouth. If the victim vomits, roll them to their side, clear the airway once they're done vomiting and reassess ABCs.
- **Qualified help arrives** and takes over. This could be a responder with a defibrillator, the ambulance service or a doctor. However DO NOT STOP until told to do so. They are likely to require time to set up their equipment, and you should continue with CPR until instructed to stop. They are likely to work around you, placing defibrillation pads on the victim's chest while you continue compressions. Continue working as normal, and let them work around you.
- **You are unable to continue** - CPR is physically very demanding, and continued periods can be exhausting. Try to change places frequently with another trained rescuer to lessen the chance of exhaustion.
- **You put yourself in danger by continuing** - Hazards may change, and if your life is endangered by a new hazard, you should stop CPR. If possible, remove the victim from the hazardous situation as well.

Obstructed Airway

If your ventilations don't go in, try adjusting the angle of the head (usually tilting it further back) and re-attempt ventilation. If the breath still doesn't go in, then do your compressions, and check the airway for obvious foreign obstructions after the compressions. If you see a foreign obstruction, remove it with your fingers if possible. **Do not discontinue CPR because the airway is occluded.**

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/C_for_Compressions&oldid=1164315

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

First Aid/D for Deadly Bleeding

Deadly Bleeding

☆ Best Practice
If the gauze or dressing becomes saturated, DO NOT take the gauze away. Apply more gauze as neccessary, only professional medical personnel should remove dressings.

CPR without enough blood is useless, so a check for deadly bleeding should be included in your primary survey whenever possible.

If your victim is breathing, then you should continue your primary assessment with a check for deadly bleeding.

If your victim isn't breathing, then you'll be doing CPR; a bystander or second trained first aider may be able to perform this check while you continue resuscitation.

Assessment

With **gloved hands** check the victim's entire body for bleeding, starting with the head. Run your hands as far under the victim as possible on either sides, checking your gloves often. If your hands are bloody, then you've found bleeding. Make sure you check the head carefully; if you find an injury on the head or neck, it may indicate a spinal injury, in which case, the spine should be immobilized. As well, hair conceals blood surprisingly well - make sure you check the scalp thoroughly.

⚠ Caution
Remember that about 80% of life-threatening bleeding can be controlled adequately using direct pressure alone and the application of a tourniquet may result in the loss of the limb.

Treatment

The key element in treating severe bleeding is the application of firm, direct pressure to the wound, using sterile gauze or other dressing. The wound may be elevated above the heart to reduce blood pressure, though this should not be done if there is a risk of disturbing fractures, or if it causes much pain to the victim.

Consider using pressure points to control major bleeding: press down on an artery that is between the heart and the wound to keep blood from flowing to the wound. Tourniquets may also be useful in controlling massive bleeding; this is not a standard procedure and should **only be used as a last resort when the victim will die without it**.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/D_for_Deadly_Bleeding&oldid=1164322

Principal Authors: Mike.lifeguard, Nugger

First Aid/CPR summary

This is a summary of CPR procedure, intended as a reminder for those with previous CPR training. It is not intended as a "teach yourself CPR" guide. It does not include the full details of CPR, which are included in the wikibook proper.

Area -check the area

Look for hazards. If there are hazards, remove them, or remove the victim from them if possible. If not, then retreat to a safe distance, call EMS and wait for their arrival. Make sure that you do not put yourself in danger. If you are near a road, ensure that you are clearly visible to traffic.

Put on gloves if you have them.

Awake -check level of consciousness

Does the victim respond to voice or painful stimulus?

If YES, check the victim for other conditions and call for help if necessary.

If NO, call EMS.

Ambulance -call EMS

Call EMS using a bystander if possible. If you're alone, and the victim is an adult (>8 years old), then leave the victim to call EMS yourself. If you're alone but the victim is a child (1-8 years old) or an infant (<1 year old), then continue; you'll call EMS later.

Obtain an AED and AED-trained responder if possible.

Airway -open the airway

Quickly remove any loose and obvious obstructions from the mouth. Then tilt the head back and lift the chin so the victim's jawline is perpendicular to the ground

Breathing -check for breathing

Is the victim breathing?

If YES, place the victim in the Recovery position and call for help unless a spinal injury is suspected in which it is crucial to **not move the patient**. If the patient vomits, however, it is more important to roll them over to their side while holding the back, neck, and head stable.

If NO, give 2 rescue breaths and begin compressions.

Correct position for CPR. The arms are fully extended and the thrusts are given from the hips.

Compressions -begin compressions

CPR Table

Age Group	Adult	Child	Infant
Single-Person	30-2	30-2	30-2
Two-Person	30-2	15-2	15-2
Technique	Both hands	One hand	Two fingers

- Adult technique: top hand pulls bottom hand's fingers back while also applying pressure.
- Rescue Breaths are given at a rate of 2-3 seconds between breaths.
- Compressions are at a rate of 100 per minute.
- Hand/finger placement is just below the nipple line and above the bottom of the breast bone, just slightly to the (victim's) left.
- After 5 cycles (approx. 2 minutes) call EMS if you haven't done so already (in the case of children or infants).

After 5 cycles (approx. 2 minutes) call EMS if you haven't done so already (in the case of children or infants). If a bystander is available, get them to call immediately upon arrival.

Continue CPR until emergency help takes over, the victim moves or takes a breath, or you are too exhausted to continue. If an AED and AED-trained responder arrives on the scene, it will have priority on the over CPR. Continue CPR until the AED operator asks you to stop.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/CPR_summary&oldid=1218713

Principal Authors: Mike.lifeguard, Mike6271, Uncle G, Jguk

Secondary assessment

First Aid/Head-to-toe

The purpose of a secondary assessment (composed of a head-to-toe, history and vitals) is to continually monitor the victim’s condition and find any non-life-threatening conditions requiring treatment. A secondary assessment should be done for any victim requiring ambulance intervention, or if there is a concern that the victim’s condition may deteriorate. In some cases, you may want to do an shortened secondary survey - use your best judgment.

Who is this for?

The **Head-to-toe** assessment is a technique used by lay rescuers, first responders, and ambulance personnel to identify an injury or illness or determine the extent of an injury or illness.

It is used on victims who meet the following criteria:

- Victim of trauma injuries (except minor injuries affecting peripheral areas)
- Unconscious victims
- Victims with very reduced level of consciousness

If a victim is found unconscious, and no history is available, you should initially assume that the unconsciousness is caused by trauma, and where possible immobilize the spine, until you can establish an alternative cause.

The secondary assessment should be performed on all the victim meeting the criteria (especially trauma) regardless of gender of rescuer or victim. However, you should be sensitive to gender issues here (as with all aspects of first aid), and if performing a full body check on a member of the opposite sex, it is advisable to ensure there is an observer present, for your own protection. In an emergency however, victim care always takes priority.

Priority of ABCs

The head-to-toe should be completed after the primary survey, so you are already confident in the victim having a patent airway, breathing satisfactorily and with a circulation.

You should always make ABCs a priority when dealing with victims who are appropriate for a secondary survey. In the case of trauma victims, where the victim is conscious and able to talk, keep talking to them throughout. This not only acts to reassure them and inform them what you're doing, but will assure you that they have a patent airway and are breathing.

For unconscious victims, if you are on your own, check the ABCs between checking every body area, or if you are with another competent person, make sure they check ABCs continuously whilst you perform the survey.

Remember that if the person is unconscious and if you know or suspect it to be a trauma injury (evidence of blood, fall etc.) than you **MUST** treat it as a potential spinal injury in the first instance. This is because in trauma, any blow to the head sufficient to cause

unconsciousness is also sufficient to cause spinal injury. In this case *immobilization of the head, neck and spine takes priority over the secondary survey.* If you have a second rescuer or bystander, then have them immobilize while you perform the head-to-toe.

What is being looked for?

The head-to-toe is a detailed examination where you should look for abnormality. This can take the form of asymmetry; deformity; bruising; point tenderness (wincing or guarding - don't necessarily expect them to tell you); minor bleeding; and medic alert bracelets, anklets, or necklaces.

It is important to remember that some people naturally have unusual body conformation, so be sensitive about this, but don't be afraid to ask the conscious victim or relatives if this is normal for them. It is always worth looking for symmetry - if it is the same both sides, the chances are, it's normal.

The six areas

Divide the body into 6 areas; after you examine each area, you reassess ABCs.

- **Head and neck** - The head and neck are important areas to assess, and you should take time and care to look for any potential problems.
  - **Head** - Using both hands (with gloves on), gently run your hands across the skull, pressing in gently but firmly, starting at the forehead and working around to the back of the head. Feel for indentations, look for blood or fluid and watch the victim for signs of discomfort. If it is a trauma injury, check both ears for signs of blood or fluid.
  - **Neck** - The neck is an important area. Start at the sides of the neck and gently press in. Watch carefully for signs of pain. Move around until you reach the spine, moving as far down the neck as possible without moving them, if they are on their back. If there is pain, tenderness or deformity here, then you should stop the survey and immediately immobilize the neck, placing one hand on each side of the head, with the thumb around the ear. This is most comfortable done from 'above' with the victim lying supine on their back, although you should support the victim in the position you find them. If there is room, you can also lie on your front, with your elbows on the floor to support the head. If there are two people, one should immobilize the head, whilst the other continues the survey. If there is only one person, immobilize the head and wait for help.
- **Shoulders, chest and back** - This area of the body contains many of the vital organs, so it is important to look for damage which could indicate internal injury
  - **Shoulders** - You should try and expose the shoulders if possible, looking for obvious deformity, especially around the collar bones. You can try pressing along the line of the collar bone, watching for deformity or pain. You should then place a hand on each shoulder, and gently push down, looking to ensure that one side does not move more than the other.
  - **Chest** - The chest is ideally done exposed, although you should be aware of the sensitivity of females to this, and if you are able to keep breasts covered, it is advisable to do so. You should be looking for sections of the chest which are out of line with the rest of it, or which are moving differently to the rest of the chest whilst breathing. You should also look for obvious wounds. You can then gently press on the chest. The best

way to do this is to imagine the chest divided in to four quarters running neck to stomach. You should place one hand (balled as a fist works well here, to avoid concerns over excess touching) and press down one on the left and one on the right in each quarter (avoiding breasts if applicable). You are watching for one side moving differently to the other, or for pain being caused.
    - **Back** - If the victim is lying on their side, or front, you can also feel down their spine. If they are lying on their back, then skip this part of the check, and leave it for the ambulance crew.
- **Arms and hands** - Run both your hands down one arm at a time, looking for deformity or pain.
- **Abdomen** - The abdomen contains the remainder of the body's critical organs, so it should be checked for potential damage. The abdomen is mostly done by gentle pushing, using the flat of your hands. Again, use symmetry, and push both sides simultaneously. Check if the abdomen feels hard (called 'boarded') or for pain caused by the palpation.
- **Pelvis** - The pelvis (hips) is a large bone, with potential for a fair amount of damage. The main diagnostic test to to place a hand on each hip and first gently compress the hips together with both hands (there should be very little movement, and little to no pain). If the patient has moderate to severe pain when the hips are compressed, or the hips move when compressed, **do not** rock the hips from side to side. If there is no pain or movement, gently push down on the hips in a "rocking" motion to see if there is any movement.
- **Legs and feet** - As with arms, use both hands at the same time, running them down the inside and outside of each leg simultaneously (avoiding the groin area on the inside). You should also look for any shortening or rotation of one leg compared to the other. Finally, you take take each foot, check that it has normal motility (can be moved normally) and has no obvious injuries

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Head-to-toe&oldid=1196335

Principal Authors: Mike.lifeguard, Owain.davies, Nugger, Firefighter04, Mike6271

First Aid/History

History

Taking a victim history is a crucial step. If an ambulance needs to be called and the victim is conscious, taking a history before the victim's condition worsens will assist the responding paramedics and the emergency department to better help the victim and be aware of medical conditions the victim is suffering from.

Some common things to ask for in a history are can be remembered using the acronym **CHAMPION**:

☆ Best Practice
If possible, write these down for quick reference later!

Chief complaint

What is the problem?

History of chief complaint

How did this happen?

Has it ever happened before?

Allergies

Are you allergic to anything?

Medical history and medications

Do you have any medical conditions (angina, high BP, diabetes…)?

Do you take any medications?

Do your medications help when this happens?

What is the name of your normal doctor?

Pain assessment

Pain location

Quality of pain (sharp/dull, squeezing…)

Radiating pain?

Severity of pain (on a scale from 1 to 10)

Timing (Constant? For how long?)

Also try to find out what makes it feel better/worse

Important Information

Name, date of birth, age, sex, address…

Onset

When did the symptoms start?

What were you doing?

Next of Kin

Is there anyone you would like contacted?

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/History&oldid=1164335

Principal Authors: Mike.lifeguard, Owain.davies, Nugger, ChopStick, Chris.rigby.69, Mike6271

First Aid/Vitals

Purpose

As part of your ongoing assessment of the victim, and in preparation for the arrival of any assistance you have called, it is important to keep a check on a victim's vital signs.

If possible, these recordings should be written down so that you can keep a record of any changes, and hand this over to the ambulance crew who take the victim from you. Ideally, it should be recorded on a report, which should form part of every first aid kit. Alternatively, you can write it on any piece of paper, or often first aiders end up writing on their protective glove.

Assessments

The vital signs you are looking to record relate to the body's essential functions. It starts with the airway and breathing already covered in basic life support (although you should look for additional detail) and continues with circulation, look of the skin, level of consciousness and pupil reaction.

Breathing

While maintaining an open airway, ensure that the victim is breathing and count the rate of breathing. The easiest way to do this is to count the number of breaths taken in a given time period (15 or 30 seconds are common time frames), and then multiply up to make a minute. The longer the time period, the more accurate it is, however you are likely to want the patient not to converse (as this disrupts their breathing pattern), and it is important not to tell them that you are watching their breathing, as this is likely to make them alter the pattern, so a shorter period is likely to be more useful and reduce worry for the patient.

In addition to rate, you should note if the breathing is heavy or shallow, and importantly if it is regular. If it is irregular, see if there is a pattern to it (such as breathing slowly, getting faster, then suddenly slower again). Note whether breathing is noisy (wheezing could be a sign of asthma, rattling (also called 'striddor') a sign of fluid in the throat or lungs)

Circulation

Whereas in the primary survey, we did not check the circulation of the victim to see if the heart was beating (we assumed that if the victim was breathing, their heart was working and if they were not breathing, their heart was also stopped), it is important in monitoring the breathing victim to check their circulation.

The two main checks are:

- **Capillary Refill** - The capillaries are the smallest type of blood vessel, and are responsible for getting blood in to all the body tissues. If the blood pressure is not high enough, then not enough blood will be getting to the capillaries. It is especially important to check capillary refill if the victim has suffered an injury to one of their limbs. You check capillary refill by taking the victim's hand, lifting it above the level of the heart, and squeezing reasonably hard for about a second on the nailbed. This should move the blood out, and the nail bed will appear white. If the pink colour returns quickly (and in a healthy victim, it may return before you even move your fingers away to look!), then this is normal. Victims who have poor peripheral circulation, especially the elderly and hypothermia victims, may not demonstrate adequate capillary refill due to general lack of bloodflow, making this test less valuable on these patients. A normal time for the pink colour to return is less than two seconds. If it takes longer than two seconds for colour to return, then this could indicate a problem and you should seek medical advice.
- **Pulse check** - As a first aider, you can also check a victim's heart rate by feeling for their pulse. There are three main places you might wish to check for a pulse:
  - **Radial pulse** - This is the best pulse to look for a first aider, on a conscious victim, as it is non-invasive and relatively easy to find. It is located on the wrist (over the radial bone). To find it, place the victim's hand palm up and take the first two fingers of your hand (NEVER use your thumb, as it contains a pulse of its own) and on the thumb side of the victim's wrist you will feel a rounded piece of bone, move in from here 1-2cm in

to a shallow dip at the side of the bone, and press your fingers in (gently), where you should be able to feel a pulse. Taking a pulse here can be a skill that takes practice, so it is worth frequently testing this skill. Should there be no pulse in a victim who is pale and unwell, you are advised to seek medical assistance urgently.

- **Carotid Pulse** - This is in the main artery which supplies the head and brain, and is located in the neck. This is best used on unconscious victims, or those victim where you are unable to find a radial pulse. To locate it, place your two fingers in to the indentation to the side of the windpipe, in line with the Adam's Apple (on men), or approximately the location a Adam's Apple would be on women.
- **Pedal Pulse** - The pedal pulse can be found in several locations on the foot, and this is used when you suspect a broken leg, in order to ascertain if there is blood flowing to the foot.

When measuring a pulse you should measure the **pulse rate**. This is best achieved by counting the number of beats in 15 seconds, and then multiplying the result by four. You should also check if the pulse is regular or irregular.

Skin

Related to circulation, is the colour of the skin. Changes in circulation will cause the skin to be different colours, and you should note if the victim is flushed, pale, ashen, or blue tinged.

It should also be noted if the victim's skin is clammy, sweaty or very dry, and this information should be passed on to the ambulance crew.

Level of Consciousness

You can continue to use the acronym **AVPU** to assess if the victim's level of consciousness changes while you are with them. To recap, the levels are:

Alert

Voice induces response

Pain induces response

Unresponsive to stimuli

Pupils

Valuable information can be gained from looking a victim's pupils. For this purpose, first aid kits should have a penlight or small torch in them.

Ideally, the pupils of the eye should be equal and reactive to light, usually written down as PEARL.

Pupils

Equal

And

Reactive to

Light

To check this, ask the victim to look straight at you with both eyes. Look to see if both pupils are the same size and shape (be sensitive to those who may be blind in one eye, or may even have a glass eye, although they will usually tell you).

To check if they are reactive, take the penlight, and ask the victim to look at your nose. Briefly (5 seconds or so) shield their eye with your hand from the light source where they are (sunlight, room lighting etc.), and then turn on the penlight, positioning it off to the side of their head. Move the penlight in over their eye quickly, and watch to see the size change. A normal reaction would be the pupil getting smaller quickly as the light is shone in to it. Repeat on the other eye.

If both pupils are the same, and both react, note this on your form as PEARL, or else note down what you did, or did not see.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Vitals&oldid=1164359

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

Circulatory emergencies

First Aid/External Bleeding

Introduction

Bleeding is a common reason for the application of first aid measures and can be internal or external. The principle difference is whether the blood leaves the body - external bleeding can be seen, whereas in internal bleeding, no blood can be seen.

Road rash can vary in severity; here it caused some minor bleeding and fluid discharge.

There are many causes of external bleeding, which fall in to six main categories, which are:

- **Abrasion** - Also called a graze, this is caused by transverse action of a foreign object against the skin, and usually does not penetrate below the epidermis
- **Excoriation** - In common with Abrasion, this is caused by mechanical destruction of the skin, although it usually has an underlying medical cause
- **Laceration** - Irregular wound caused by blunt impact to soft tissue overlying hard tissue or tearing such as in childbirth
- **Incision** - A clean 'surgical' wound, caused by a sharp object, such as a knife
- **Puncture Wound** - Caused by an object penetrated the skin and underlying layers, such as a nail, needle or knife
- **Contusion** - Also known as a bruise, this is a blunt trauma damaging tissue under the surface of the skin
- **Gunshot wounds** - Caused by a projectile weapon, this may include two external wounds (entry and exit) and a contiguous wound between the two

Recognition

Recognizing external bleeding is usually easy, as the presence of blood should alert you to it. It should however be remembered that blood may be underneath or behind a victim. It may be difficult to find the source of bleeding, especially with large wounds or (even quite small) wounds with large amounts of bleeding. If there is more than 5 cups of bleeding, then the situation is life-threatening.

Minor bleeding from an abrasion.

Treatment

Bleeding from a thumb wound.

⚠ Caution

Put gloves on before coming into contact with any blood or body fluids.

As with all first aid situations, the priority is to protect yourself, so put on protective gloves before approaching the victim.

All external bleeding is treated using three key techniques, which allow the body's natural repair process to start. These can be remembered using the acronym mnemonic 'RED':

Rest

Elevation

Direct pressure

Rest

In all cases, the less movement the wound undergoes, the easier the healing process will be, so rest is advised.

Elevation

A rescuer applying direct pressure and elevating the arm for an arm laceration.

Direct pressure is usually enough to stop most minor bleeds, but for larger bleeds, it may be necessary to elevate the wound above the level of the heart (whilst maintaining direct pressure the whole time). This decreases the blood flow to the affected area, slowing the blood flow, and assisting clotting.

Elevation only works on the peripheries of the body (limbs and head) and is not appropriate for body wounds. You should ask the victim to hold their wound as high as possible. You should assist them to do this if necessary, and use furniture or surrounding items to help support them in this position. If it is the legs affected, you should lie them on their back (supine), and raise their legs.

Direct Pressure

The most important of these three is direct pressure. This is simply placing pressure on the wound in order to stem the flow of blood. This is best done using a dressing, such as a sterile gauze pad (although in an emergency, any material is suitable).

If the blood starts to come through the dressing you are using, add additional dressings to the top, to a maximum of three. If you reach three dressings, you should remove all but the one in contact with the wound itself (as this may cause it to reopen) and continue to add pads on top. Repeat this again when you reach three dressings. The reason for not simply adding more dressings is that it becomes harder to apply the direct pressure which is clearly needed if this much blood is produced.

Where an articulate area of the body is wounded (such as the arms or hands), it is important to consider the position of the area in keeping pressure on the wound. For example, if a hand is cut 'across' from the thumb to halfway across the palm, the would can be closed with direct pressure by simply clasping the victim's hand shut. However, if the hand was wounded from between the two middle fingers down to the wrist, closing the hand would have the effect of opening the wound, and so the victim should have their hand kept flat.

In most cases, during the initial treatment of the bleed, you will apply pressure by hand in order to stem the flow of blood. In some cases, a dressing may help you do this as it can keep pressure consistently on the wound. If you stop the flow by hand, you should then consider dressing the wound properly, as below.

Dressing

Once the bleeding is slowed or stopped, or in some cases, to assist the slowing of the blood flow you should consider dressing the wound properly.

To dress a wound, use a sterile low-adherent pad, which will not stick to the wound, but will absorb the blood coming from it. Once this is in place, wrap a crepe or conforming bandage around firmly. It should be tight enough to apply some direct pressure, but should not be so tight as to cut blood flow off below the bandage. A simple check for the bandage being too tight on a limb wound is a capillary refill check; to do this, hold the hand or foot (dependent on what limb is injured) above the level of the heart and firmly pinch the nail. If it takes more than 2 seconds for the pink color to return under the nail, then the bandage is likely to be too tight.

If the blood starts to come through the dressing you have applied, add another on top, to a maximum of three. If these are all saturated, remove the top two, leaving the closest dressing to the wound in place. This ensures that any blood clots that have formed are not disturbed; otherwise, the wound would be opened anew.

Special cases

Nosebleeds (epistaxis)

If a person has nosebleed, have them pinch the soft part of the nose firmly between thumb and forefinger, just below the end of the bone. If necessary, do this yourself, but it is preferable to have them do it themselves if they are able to do it effectively.

The victim should lean their head slightly forward and breathe through their mouth. You can also leave the head in a neutral position, but **never tilt the head back**. Tilting the head forward ensures that blood isn't ingested (as it can cause vomiting) or inhaled (choking hazard).

If you are unsuccessful at stopping the bleeding after 10 minutes of direct pressure, you should assess the blood flow. If the blood flow is minor, you could consider using an ice pack on the bridge of the nose to help stem the flow.

If the nose continues to bleed with a fast flow, you should seek medical assistance, probably from the ambulance.

Embedded Objects

If there is something embedded in the wound, do not remove it. Instead, apply pressure *around* the object using sterile gauze as described above. Rolled bandages are perfect for this. Be careful not to disturb the object, as moving it may exacerbate the bleeding. This doesn't apply to superficial splinters and such.

Stab, puncture or gunshot wounds to the body

These wounds are life threatening, and after assessing the ABCs of the victim, you should immediately summon an ambulance. As always, you should check that you are not in danger when approaching these victims (from someone with a knife or gun, for instance). As with all embedded objects, ensure you do not remove the item from the body.

If possible, you should sit the victim up (as blood in the body will go to the lowest point, allowing the heart and lungs to work as efficiently as possible). You should also lean them to the injured side, keeping the healthy side free from incursion by blood.

Assess the victim for open chest wounds or abdominal injuries, and treat accordingly.

Amputations

If a body part has been amputated, immediately summon ambulance assistance, and treat the bleeding as above. Cover the amputated part with a moist dressing and get it into a clean plastic bag, and place this bag into a bag of ice and water, sending it with the victim to the hospital. (label date & time, what body part it is ie:Right finger) You should avoid putting the part in direct contact with ice, as this can cause irreparable damage, meaning that surgeons are unable to reattach it.

If the body part is partially amputated, do not detach.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/External_Bleeding&oldid=1316594

Principal Authors: Mike.lifeguard, Mike6271, Owain.davies, Nugger

First Aid/Internal Bleeding

Introduction

Internal bleeding is bleeding which occurs inside the body. Sometimes the blood will leak from inside the body through natural openings. Other times the blood stays inside the body, causing pain and shock, even though you cannot see the blood loss.

Causes

Internal bleeding can be caused numerous ways. Any time someone could have internal bleeding, you will do no harm by treating them for internal bleeding, but not treating the victim could lead to death.

Some causes include:

- Falls
- Car Accidents

- Motorcycle Accidents
- Pedestrians Struck by a Vehicle
- Gun Shot Wounds
- Injures from Explosions
- Impaled Objects
- Stab Wounds
- Surgery

Recognition

A person may be bleeding internally if one of these things happens:

- Blood comes out of the nose or mouth (occurs from severe head trauma)
- Blood or clear fluid comes out of the ear (occurs from severe head trauma)
- Blood is in the stool
- Blood is in the urine
- Bright red blood, or blood like 'coffee-grounds', is in the vomit
- Blood comes from a woman's birth canal after an injury or during pregnancy
- Bruising over the abdominal or chest area
- Pain over vital organs
- Fractured femur

But remember, a person may be bleeding inside the body, even though you cannot see the bleeding. If you see the signs of shock and no apparent injuries, always suspect internal bleeding. Check the skin color changes. In cases of internal bleeding the skin may become pale and cold, and cyanosis may be present.

Treatment

☆ Best Practice
Any time there is the possibility of internal bleeding, it is crucial to treat as if there is internal bleeding. Not treating may result in death, but treating when there is no injury will not result in harm.

As with any victim, before treating, put on disposable gloves and take other necessary body substance isolation precautions.

- Check the victim's ABCs.
  - If the victim has ABC complications, treat those first - ABCs always take priority.
- **Call an ambulance**
- Treat for shock
  - Assist the victim into the most comfortable position
- Monitor ABCs and vitals until the ambulance arrives

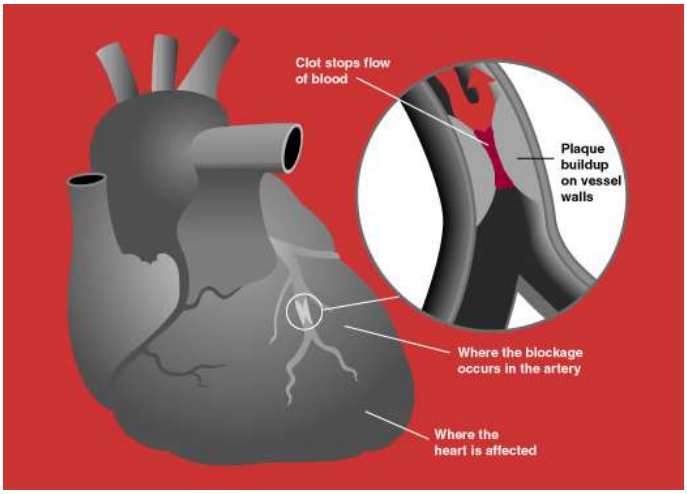
Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Internal_Bleeding&oldid=1224744

Principal Authors: Mike.lifeguard, Mike6271, Owain.davies

First Aid/Heart Attack & Angina

Introduction

Heart attack (myocardial infarction) is when blood supply to the heart or part of the heart is cut off partially or completely, which leads to death of the heart muscle due to oxygen deprivation. Heart attacks usually occur after periods of rest or being recumbent, and only rarely occur after exercise (despite popular portrayal).


Clot stops flow of blood
Plaque buildup on vessel walls
Where the blockage occurs in the artery
Where the heart is affected
Heart attack can be caused by blockage in arteries supplying blood to the heart.

Angina (angina pectoris) is a 'miniature heart attack' caused by a short term blockage. Angina almost always occurs after strenuous exercise or periods of high stress for the victim.

The key differentiation between a heart attack and angina is that, in line with their typical onset modes, angina should start to relieve very shortly after resting (a few minutes), whereas a heart attack will not relieve with rest.

Recognition

- Chest pain: tightness in the chest or between the shoulder blades, often radiating into the left arm, and the jaw
- Nausea or indigestion (especially in women)
- Pale, clammy skin
- Ashen grey skin
- Impending sense of doom
- Denial

Treatment

Assist the victim with medication, if they have any. People with angina will often have medication to control it; either as pills or a spray. The pills should never be touched with bare skin by the rescuer, as they may cause a migraine headache, and they are placed under the tongue for absorption. The spray should be taken on the bottom of the tongue. Only the victim should administer his medication. If he is unable to do so, then the rescuer should not do it for him. Helping to take the lid off or handing the bottle to the victim is fine, this should be documented if patient is transferred to other rescuers.

- **Call for an ambulance** if they don't have medication, or if the medication doesn't help
- **Loosen tight clothing**, especially around the neck
- **Assist the victim into a recumbent position**, with the body leant back at about 45 degrees, with feet on the floor, but knees raised - this puts the patient in a 'W' position.

- If the patient is not on any anti-coagulant medicine such as heparin or warfarin, then assist them in taking one dose of aspirin if they decide to do so.
- **Continue monitoring vitals**
- **Be prepared to do CPR** should the victim go into cardiac arrest.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Heart_Attack_&_Angina&oldid=1164333

Principal Authors: Mike.lifeguard, Owain.davies, Mike6271

First Aid/Stroke & TIA

A **Stroke** is a small blockage in a blood vessel of the brain, which causes oxygen starvation to that part. This oxygen starvation can cause a loss of function, related to the area of the brain affected. Dependant on the length of time the area is blocked, the damage may become irreparable. The blockage is usually caused by a small blood clot, although incursions such as air bubbles can have the same effect.

There are two main types of stroke - a **CVA** (Cardiovascular Attack - sometimes called just a stroke or major stroke) and a **TIA** (Transient Ischaemic Attack - sometimes called a mini-stroke).

The difference between a CVA and a TIA is simply the duration of the symptoms. If the symptoms pass

Recognition

☆ Best Practice
To test for the affected side of a stroke, have the victim squeeze your hands at the same time. You will notice a difference in pressure that they may not.

The key recognition signs for a stroke can be remembered with the acronym FAST, which stands for:

- **Facial Weakness** - Can the person smile? has their eye or mouth drooped?
- **Arm Weakness** - Can the person raise both arms and hold them parallel? If they squeeze your hands can they exert equal force?
- **Speech problems** - Can the person speak clearly and understand what you say
- **Test all three symptoms**

The patient may also experience additional symptoms, which on their own do not indicate a stroke. These include:

- Sudden blurred, dim or patchy vision
- Sudden dizziness
- Sudden, severe, unusual headache

Treatment

Conscious victim

- Call for an ambulance
- Reassure the victim
- Encourage and facilitate the victim to move in to a position of comfort if possible. If they have significant paralysis, they may be unable to move themselves, so you should make them as comfortable as possible where they are. If possible, incline them to the unaffected side (if there is one), as this will help you relieve some symptoms such as a feeling of floating.
- Take vitals, history and regular observations

Unconscious victim

- Call for an ambulance
- Assess the victim's ABCs (attempt CPR if not breathing)
- Assist the victim into the recovery position on their **unaffected** side where gravity may assist blood to reach the injured side of the brain, which is below the unaffected side of the brain. Additionally, bleeding (if any) may drain out the ear.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Stroke_&_TIA&oldid=1184475

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

First Aid/Shock

Introduction

Shock is a range of related medical conditions where the delivery of oxygen and nutrients is insufficient to meet the body's needs. The main carrier of oxygen and nutrients in the body is the blood, so most causes are related to the blood, with the most common first aid consideration being loss of blood. Shock is a life-threatening emergency, it should not be confused with a feeling of extreme surprise - one does not lead to the other.

Key types of shock

- **Hypovolaemic shock** - This is caused by the loss of blood from the circulatory system (not necessarily from the body, as it may be the result of internal bleeding)
- **Cardiogenic shock** - This is where the blood is not pumping effectively through the body - usually caused by heart problems, such as a heart attack
- **Anaphylactic shock** - Caused by an allergic reaction that causes air passages to swell, blocking the flow of oxygen, and causing a lack of oxygen in the blood

Recognition

Signs of shock can range greatly, some common signs are:

Early Phases

- A rapid pulse
- Pale, cold, clammy skin
- Sweating

Developing phase

- Cyanosis - Grey/blue skin, especially in areas such as the lips. Sometimes known as 'bluing'
- Weakness and dizziness
- Nausea and possibly vomiting
- Thirst
- Rapid, shallow breathing
- Weak, 'thready' pulse

Advanced phases

- Absence of pulse from the wrist (radial)
- Restlessness and aggressiveness
- Yawning and gasping for air
- Unconsciousness

Final phase

- Cardiac arrest

Treatment

The most important treatment for shock of any variety is to try and maintain the blood flow to the body's core (thorax and head). To do this, lie the patient flat on the floor and **raise their legs** about 6-12 inches (15-30cm) off the ground.

Other important factors in the treatment of shock can be remembered by the simple mnemonic WART:

Warmth

ABCs (Airway, Breathing, Circulation.)

Rest & Reassurance

Treatment of underlying cause

A ''healthcare provider'' checks the carotid pulse of a victim in the '''recovery position'''.

Unconscious patients

Should a patient become unconscious, call for an ambulance and take the following steps:

- Assess ABCs. Should any change occur, compensate with required treatment. *(ex. Patient goes into cardiac arrest, begin CPR.)*
- As airway takes priority over other treatment, you should place them in the recovery position in order to ensure a patent airway.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Shock&oldid=1316495

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

Respiratory emergencies

First Aid/Anaphylactic Shock

Introduction

Anaphylaxis is a life-threatening medical emergency because of rapid constriction of the airway, often within minutes of exposure to the allergen. It is commonly triggered by insect stings and foods such as shellfish or peanuts. Call for help immediately. First aid for anaphylaxis consists of obtaining advanced medical care at once. Look to see if a device such as an Epi-pen is available - most people who know they have anaphylactic reactions will carry an Epi-pen with them. First aiders in many jurisdictions are now permitted to administer epinephrine in the form of an Epi-pen if the victim is unable to do so themselves. *Check what the law says in your area.*

Recognition

- Hives or rash all over accompanied by itchiness
- Swelling or puffiness of the lymph nodes, especially around the neck and mouth
- Swelling of the airway and tongue
- Difficulty breathing, wheezing or gasping

Treatment

- **Call EMS** immediately
- Have the victim administer their Epi-pen if possible
- Encourage the victim to breathe slowly; calm them
- The victim should rest until EMS arrives
- Monitor ABCs and begin CPR if required
- If the victim is unable to administer their Epi-pen and it is legal to do so, administer the Epi-pen for them

Administering an EpiPen

Regional Note
Administering an EpiPen is not legal in all jurisdictions without proper training and certification.

EpiPens are the most common form of epinephrine auto-injectors, and are designed for ease of use. There are instructions in the tube with the auto-injector, but you should know how to use one ahead of time. They're designed to inject through clothes, so you don't have to remove the victim's pants - even if they're wearing a heavy material like denim. Whenever possible, the victim should inject themselves, but if they're unable to do so, you *may* be legally permitted to inject the victim.

Remove the auto-injector from the tube. One end has a black tip - this is where the needle will come out. **Do not touch this tip!** The other end has a grey cap. Remove the grey cap,

hold the EpiPen in your fist, and press it firmly against the outside of the victim's outer thigh. There should be an audible click. If there is not, try again but pressing harder. **Hold the auto-injector in place for 10 seconds.** When you remove it, massage the area for 10 seconds, then replace the EpiPen into the tube *needle end first* to avoid any danger. When EMS arrives, they can dispose of it for you.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Anaphylactic_Shock&oldid=1164303

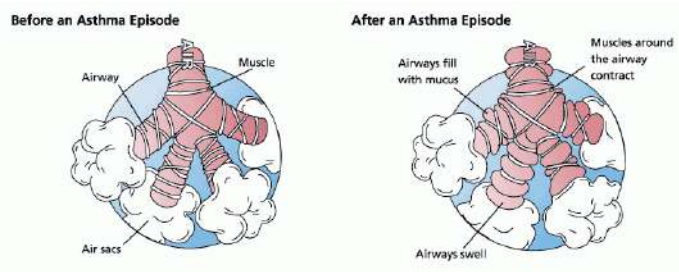
Principal Authors: Mike.lifeguard, Mike6271

First Aid/Asthma & Hyperventilation

Introduction

Asthma is a medical condition which causes swelling of the airway, constricting airflow.

Hyperventilation is simply breathing at an inappropriately high rate.



Asthma attacks are characterized by inflammation of the airway, which constricts air exchange.

Recognition

Asthma is characterized by difficulty breathing, wheezing, increased secretions in the airway, and a history of asthma. Hyperventilation can be recognized by fast breathing which is inappropriate for the circumstances, a feeling of not being able to catch one's breath, and lightheadedness.

Treatment

For Asthma

Asthma inhalers come in several styles. The one on the left is not a fast-acting inhaler, and should not be administered in an asthma attack

- **If the victim has a fast-acting inhaler for asthma attacks, encourage them to use it.** You may assist with finding the inhaler.
- Have the victim match your breathing patterns - calm the victim while slowing their breathing rate
- Assist the casualty to sit in a position which relieves pressure on the chest. The tripod position is ideal - sitting up, leaning slightly forward, supporting their weight with their arms either on their knees or on a table or the like in front of them.
- Call EMS if the victim's condition does not improve or if the victim's level of consciousness is lowered

For Hyperventilation The aim is to calm the casualty down, to reduce their rate of breathing, and if possible to increase the concentration of carbon dioxide in the air they breathe, perhaps by getting them to breathe into a paper bag.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Asthma_&_Hyperventilation&oldid=1164309

Principal Authors: Mike.lifeguard, Mike6271, Chris.rigby.69, Nugger

First Aid/Obstructed Airway

Conscious Victims

Abdominal thrusts are used to clear the obstructed airway of a conscious victim. It is an effective life-saving measure in cases of severe airway obstruction.

A person performing abdominal thrusts uses their hands to exert pressure on the bottom of the diaphragm. This compresses the lungs and exerts pressure on any object lodged in the trachea, hopefully expelling it. This amounts to an artificial cough. (The victim of an obstructed airway, having lost the ability to draw air into the lungs, has lost the ability to cough on their own.)

Even when performed correctly, abdominal thrusts can injure the person they are performed on. Abdominal thrusts should never be performed on someone who can still cough, breathe, or speak - encourage them to cough instead.

Signs of a severe airway obstruction

- **The person desperately grabs at their neck**
- The person can not speak or cry out
- The person's face turns blue from lack of oxygen

Abdominal thrusts are performed only on conscious adult or child victims with a severe airway obstruction

Obstructed Airway for Adults & Children

Abdominal thrusts are only used on conscious adult or child victims with severe airway obstructions. Before attempting abdominal thrusts, ask the victim "Are you choking?" If the victim can reply verbally, you should not interfere, but encourage the victim to cough.

If the victim's airway obstruction is severe, then perform abdominal thrusts:

- The rescuer stands behind and to the side of the victim and wraps their arms around the victim's sides, underneath the victim's arms
- One hand is made into a fist and placed, thumb side in, flat against the victim's upper abdomen, below the ribs but above the navel
- The other hand grabs the fist and directs it in a series of upward thrusts until the object obstructing the airway is expelled
- The thrusts should not compress or restrict the ribcage in any way.
- If you're not able to compress the victim's diaphragm due to their size or pregnancy, then perform the thrusts at the chest.

If the victim loses consciousness, call for an ambulance. *They fall - you call*

Obstructed Airway for Infants

For infants, a severe obstruction may be accompanied by a high-pitched, crow-like sound which is not present in adults or children. This is due to the incomplete formation of the infant's airway. *Instead of abdominal thrusts*, alternate 5 chest thrusts with 5 back blows:

- Hold the infant with the head in your hand, and the spine along your forearm and the head below the rest of the body
- Compress the chest 5 times as you would for infant CPR
- Switch the infant to your other forearm, so their chest is now against the arm
- Perform 5 back blows, keeping the infant's head below the rest of the body
- Continue until the obstruction is cleared, or the infant goes unconscious

Unconscious Victims

If a victim has become unconscious as a result of an occluded airway, you should immediately call for assistance from the emergency medical services, and commence a primary assessment, starting with Airway and if required, commence CPR to keep the victim alive.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Obstructed_Airway&oldid=1292652

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

Soft tissue injuries

First Aid/Burns

Burns are special types of soft-tissue injuries that can damage one or more layers of the skin and underlying tissues.

Recognition

There are 3 degrees of burns:

1. *Superficial Burn - First-degree* Skin will be dry, red, may swell and will usually be painful.
2. *Partial thickness - Second-degree* Skin will be red and may swell, usually is painful, has blisters that may open and release a clear fluid. This will make the skin appear wet.
3. *Full Thickness - Third-degree* May destroy underlying tissues such as fat, bones, nerves, and muscles. Skin may be brown or black and will look charred. Tissue underneath may appear white. May be very painful or painless due to nerve endings being destroyed.

A second-degree thermal burn - notice the blister centre of the burn, and the surrounding redness.

Burns may be caused by heat (thermal burns), chemicals (wet or dry), by electricity, or by radiation.

Treatment

Thermal burns

You must stop the burning by removing the person from the source of the burn. Check for any life-threatening conditions by checking the **A**irway, **B**reathing, and **C**irculation. Cool the burn with copious amounts of water until the pain is relieved.

Cover the burn loosely with a sterile (preferably non-adhesive) dressing. **Do not use butter, oils, creams, etc.**; they can trap heat and increase risk of infection. They will also need to be cleaned out by the hospital later, which only increases the pain the patient must endure. Also do not use antiseptics that may aggravate sensitive skin. **Treat for shock.** Burns cripple the body's ability to regulate heat. Ensure the person does not become over-heated or chilled.

Aloe vera extract, silverdene (Silver Sulfazdiazine), topical analgaesics, and NSAIDs (such as ibuprofen or aspirin) are commonly used medications. Consult a doctor before use.

Chemical burns

Don't do this!
• Apply ice or iced water except on small first degree burns. • Touch a burn with anything other than a sterile covering. • Remove adhered clothing. • Try to clean a severe burn. • Break blisters. • Use any kind of ointment on a severe burn.

If there is a dry chemical, brush it off the skin using paper, cloth, or with a gloved hand. Be sure not to get any on yourself or more on the patient. Once the bulk of the dry chemical is gone, flush with running water as above. Call EMS immediately. If the burn is caused by a wet chemical, flush with plenty of water for 15 minutes and while flushing, call EMS immediately.

Electrical burns

Electrical burns look like third-degree burns, but are not surrounded by first- and second-degree burns. They always come in pairs: an entry wound (smallest) and exit wound (larger). Call EMS immediately if a person has been shocked as electrocution can cause cardiac and respiratory problems. Be prepared to give CPR or defibrillation. Care is the same for thermal burns.

Radiation burns

Radiation burns, though typically caused from a nuclear source, could also include ultraviolet radiation in the form of sunburn which should be treated as a thermal burn. Burns caused by a nuclear source, though rare, are still possible. Radiation burns can not be treated by a lay rescuer. Individuals working in high-risk environments for possible radiation exposure are trained in the treatment of radiation burns. The rescuer may unknowingly put himself/herself at risk of radiation exposure by treating someone with a radiation burn. For all nuclear radiation burns, call your local emergency number immediately.

Radiation burns also come in the form of snow blindness (or other intense light burns to the retina). Cover the eyes with sterile gauze, and contact EMS immediately. Do whatever you can to keep the victim comfortable, monitor ABCs, treat for shock, and keep the victim calm.

Critical Burns

The following burns require medical attention as soon as possible. They may be life-threatening, disabling, and disfiguring. Call the local emergency number if:

- Burns to a child younger than five years old or burns to an elderly person.
- The patient is having difficulty breathing.
- The burns are on more than one body part.
- There are burns to the head, neck, hands, feet, or genitals.
- Burns to the mouth or nose may be signs of burns to the airway.
- Any burns resulting from chemicals or electricity.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Burns&oldid=1320548

Principal Authors: Mike.lifeguard, Mike6271, CommonsDelinker, Nugger

First Aid/Electrocution

Electrocution is a related set of injuries caused by direct contact with live electrical connections. The effects can vary from minor to causing cardiac arrest.

Actions and Treatment

⚠ Caution
Before attempting to treat an electrocution victim, ensure they are not still in contact with live electricity. Turn off the power at the main or remove the victim from contact using a non-conducting material, such as a wooden pole.

- **Be aware of Danger** - The clear danger in this situation is the electrical supply.
  - If the victim is still touching a live electrical source, either turn off the power to the source, or break the victim's contact with it. Find a non-conductive object (wooden broom handles are commonly used) and break the contact between the victim and the source. Should the victim be in contact with downed power lines, do not attempt a rescue. Instead, call 911 and wait for professional rescuers to come and ensure the power lines are no longer live.
- **Call an ambulance immediately** - all victims of electrocution, whether conscious or unconscious require assessment in hospital.
- After ensuring the area is safe, begin a primary assessment - **check ABCs & begin CPR if required**.
- Conduct a secondary assessment looking specifically for 2 electrical burns.
  - Electrical burns look like third-degree burns, but are not surrounded by first- and second-degree burns. They always come in pairs: an entry wound (smaller) and exit wound (larger). You should cover the wounds with nonstick, sterile dressings. Remember that the most serious problem is rarely the burn, and cardiac arrest is very possible.

Electrocution causing unconsciousness

Serious electrocution may cause unconsciousness, at least for a brief period. If this is the case, conduct your primary assessment by checking ABCs. If they are not breathing, begin CPR. Airway swelling can occur from being electrocuted. Frequently check the victim's breathing.

If the victim received a serious electric shock, do not put the victim in the recovery position. Head/neck/back injuries along with multiple fractures can occur from strong muscle contractions from being electrocuted. Begin a secondary assessment, looking specifically for 2 or more electrical burns - one entrance wound and one exit wound. Continually evaluate the ABCs. Cardiac rhythm disturbances can quickly cause the victim to go into cardiac arrest.

Electrocution not causing unconsciousness

Those victims who are not rendered unconscious are likely to feel unwell after the experience, and may well complain of numbness or pins & needles in the area where through the electricity has passed. These victims must still be transported to a hospital for evaluation, as heart rhythm disturbances can lead to cardiac arrest.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Electrocution&oldid=1254119

Principal Authors: Mike.lifeguard, Owain.davies, Nugger, Mike6271

First Aid/Chest & Abdominal Injuries

Closed Chest Wounds

Chest wounds can be inherently serious as this area of the body protects the majority of the vital organs. Most chest trauma should receive professional medical attention, so consider calling for an ambulance for any serious chest injury.

The most likely injuries that can be caused with a chest injury include broken ribs. A single broken rib can be very painful for the patient, and a rib fracture carries with it the risk of causing internal injury, such as puncturing the lung, which can lead in turn to the lung collapsing.

There are also some specific, more complicated, rib fracture patterns, which include:

- **Flail chest** – 2 or more rib fractures along the same rib(s)
- Can cause a 'floating' segment of the chest wall which makes breathing difficult
- **Stove chest** – all ribs fractured
- Can cause the entire ribcage to lose its rigidity, causing great difficulty breathing

Recognition

- Trouble breathing
- Shallow breathing
- Tenderness at site of injury
- Deformity & bruising of chest
- Uneven expansion of chest
- Pain upon movement/deep breathing/coughing
- Cyanosis
- May cough up blood
- Crackling sensation in skin if lung is punctured

Treatment

- Assess ABCs and intervene as necessary
- Call for an ambulance
- Assist the victim into a position of comfort
- Conduct a secondary survey
- Monitor vitals carefully

Open Chest Wounds

An **open pneumothorax** or **sucking chest wound** - the chest wall has been penetrated (by knife, bullet, falling onto a sharp object...)

Recognition

- An open chest wound – escaping air
- Entrance and possible exit wound (exit wounds are more severe)
- Trouble breathing
- Sucking sound as air passes through opening in chest wall
- Blood or blood-stained bubbles may be expelled with each exhalation
- Coughing up blood

Treatment

- Assess ABCs and intervene as necessary
- **Do not remove any embedded objects**
- Call for an ambulance
- Flutter valve over wound, as described below
- Lateral positioning: victim's injured side down
- Treat for shock
- Conduct a secondary survey
- Monitor vitals carefully

Making a flutter valve

Get some sort of plastic that is bigger than the wound. Ideas: credit card or similar, Ziploc bag, some first aid kits will have a ready-to-use valve. Tape the plastic patch over the wound on only 3 sides. The 4th side is left open, allowing blood to drain and air to escape. This opening should be at the bottom (as determined by the victim’s position).

Abdominal Injuries

If a trauma injury has caused the victim's internal organs to protrude outside the abdominal wall, **do not push them back in**. Instead, have the person lie flat with their knees bent and cover the organs with a moist, sterile dressing (*not paper products - use gauze*). Do not allow the victim to eat or drink, though they may complain of extreme thirst. ***Call an ambulance*** treat for shock and monitor ABCs until the emergency medical team arrives.

If the abdominal injury does not cause an open wound, have the person lie flat with their knees bent and treat for shock until EMS arrives.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Chest_&_Abdominal_Injuries&oldid=1171677

Principal Authors: Mike.lifeguard, Owain.davies, Delldot, Nugger

Bone & joint injuries

First Aid/Musculoskeletal Injuries

Sprain or Fracture?

Sprains, strains, dislocations, and fractures can all present with the same symptoms. It is very difficult to determine what the injury may be. It is not necessary to know which injury the victim has as the treatment will be the same for all of them.

If the patient has any of the following symptoms, you should treat for a possible muscle or skeletal injury.

- Deformity at the injury site
- Crepitus - A grinding or cracking sound when the affected area is moved (usually accompanied by extreme pain). (**Do not test for this!** It should be reported by the patient.)
- Bruising and swelling
- No pulse below injury site
- Inability to use the affected body part normally

If the injury appears to be severe, EMS should be activated as soon as possible.

Treatment

The treatment for any muscle, bone or joint injury follows the simple acronym "**RICE**".

Rest - Rest is very important for soft tissue injuries, both in the short term and for longer term care.

Immobilize - Sprains, strains and dislocations can slinged; fractures should be splinted and slinged.

Cold - Ice should be applied periodically, for around 10-20 minutes at a time. You should then take the ice off for around the same time it was on for. In order to avoid problems, always place some fabric between the ice and the skin.

Elevation - Where appropriate, the injury should be elevated, as this may help reduce the localized swelling which occurs. Do not elevate if this causes more pain to the victim.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Musculoskeletal_Injuries&oldid=1179545

Principal Authors: Mike.lifeguard, Owain.davies, Nugger

First Aid/Immobilization

Immobilization

The proper method of slinging depends on where the injury occurred on the arm. After applying a sling, ensure circulation to the arm has not been compromised by doing a distal circulation check. Remember also that moving an arm into a position where you can put a sling on it may be painful for the victim. If that is the case, simply immobilize in the position found. You will have to improvise something based on the victim's position of comfort.

The arm sling – for injuries to the forearm

- Support the injured forearm approximately parallel to the ground with the wrist slightly higher than the elbow.
- Place an open triangular bandage between the body and the arm, with its apex towards the elbow.
- Extend the upper point of the bandage over the shoulder on the uninjured side.
- Bring the lower point up over the arm, across the shoulder on the injured side to join the upper point and tie firmly with a reef knot.
- Ensure the elbow is secure by folding the excess bandage over the elbow, securing it with a safety pin.

This can be accomplished by using the victim's shirt or sweater as a sling. Simply pin the bottom hem to their chest using multiple safety pins, going over the arm. This works surprisingly well!

A splint and sling applied to the forearm. Note the second triangular bandage immobilizing the arm by holding it against the torso.

Elevated sling – for injuries to the shoulder

- Support the victim's arm with the elbow beside the body and the hand extended towards the uninjured shoulder.
- Place an opened triangular bandage over the forearm and hand, with the apex towards the elbow.
- Extend the upper point of the bandage over the uninjured shoulder.
- Tuck the lower part of the bandage under the injured arm, bring it under the elbow and around the back and extend the lower point up to meet the upper point at the shoulder.
- Tie firmly with a reef knot.
- Secure the elbow by folding the excess material and applying a safety pin, and then ensure that the sling is tucked under the arm giving firm support.

Collar and cuff – for upper arm or rib injuries

- Allow the elbow to hang naturally at the side and place the hand extended towards the shoulder on the uninjured side.
- Form a clove hitch by forming two loops – one towards you, the other away.
- Put the loops together by sliding your hands under the loops and closing with a "clapping" motion. If you can tie a clove hitch, simply tie it on the wrist.
- Slide the clove hitch over the hand and gently pull it firmly to secure the wrist. Extend the points of the bandage to either side of the neck, and tie firmly with a reef know.
- Allow the arm to hand naturally.
- *It is especially important for this sling that you ensure that circulation to the hand is not compromised – do distal circulation checks often*

Femoral fractures

The femur is the largest bone in the body, and has a large artery, the femoral artery, directly beside it. Because a mechanism of injury which can fracture the femur is likely to also displace the fracture, it is possible that the femoral artery will be damaged internally. Damage to the femoral artery is likely to cause massive internal bleeding, so it is a major emergency; **Call EMS** immediately. Be sure to maintain as much immobilization as possible and monitor ABCs until EMS arrives.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Immobilization&oldid=1179542

Principal Authors: Mike.lifeguard, Jomegat, Nugger

First Aid/Head & Facial Injuries

Head Injuries

Head wounds must be treated with particular care, since there is always the possibility of brain damage. The general treatment for head wounds is the same as that for other flesh wounds. However, certain special precautions must be observed if you are giving first aid to a person who has suffered a head wound. Victims with a head injury causing decreased level of consciousness (no matter how brief) require assessment by a physician. *Victims with a head injury also require assessment for a potential spinal injury.* Any mechanism of injury that can cause a head injury can also cause a spinal injury.

Concussion

- Mild head injury that causes a brief "short-circuit" of the brain
- Essentially, the brain has been rattled within the skull
- No damage or injury to brain tissue

Recognition

- Possibly unconscious for a short period of time
- Dazed and confused for several minutes
- Vomiting

- Visual disturbances (seeing stars)
- Amnesia (memory loss)
- Pupils unequal in size or unreactive to light
- Head pain
- Anxiety & agitation

Compression

- Pressure on the brain caused by a build-up of fluids or a depressed skull fracture
- The brain has been bruised
- Damage to brain tissue is likely
- Symptoms are progressive, and will usually get worse over time

Recognition

- Possibly unconscious for a short period of time
- Dazed and confused for several minutes
- Vomiting
- Visual disturbances (seeing stars)
- Amnesia (memory loss)
- Pupils unequal in size or uncreative to light
- Head pain
- Anxiety & agitation
- Symptoms usually worsen over time

Treatment

- EMS
- Immobilize spine if required
- Treat for any bleeding, bruising or swelling (if you suspect a skull fracture, do not apply pressure – instead, use a thick dressing with as little pressure as possible)

Notes for head injuries

- If the level of consciousness is altered, call EMS
- Do not use direct pressure to control bleeding if the skull is depressed or obviously fractured, as this would cause further injury by compressing the brain

Injuries involving the eye

Wounds that involve the eyelids or the soft tissue around the eye must be handled carefully to avoid further damage. If the injury does not involve the eyeball, apply a sterile compress and hold it in place with a firm bandage. If the eyeball appears to be injured, use a loose bandage. (Remember that you must NEVER attempt to remove any object that is embedded in the eyeball or that has penetrated it; just apply a dry, sterile compress to cover both eyes, and hold the compress in place with a loose bandage). Any person who has suffered a facial wound that involves the eye, the eyelids, or the tissues around the eye must receive medical attention as soon as possible. Be sure to keep the victim lying down. Use a stretcher for transport.

Many eye wounds contain foreign objects. Dirt, coal, cinders, eyelashes, bits of metal, and a variety of other objects may become lodged in the eye. Since even a small piece of dirt is

intensely irritating to the eye, the removal of such objects is important. However, the eye is easily damaged. Impairment of vision (or even total loss of vision) can result from fumbling, inexpert attempts to remove foreign objects from the eye. The following precautions must be observed:

- DO NOT allow the victim to rub the eye.
- DO NOT press against the eye or manipulate it in any way that might cause the object to become embedded in the tissues of the eye. Be very gentle; roughness is almost sure to cause injury to the eye.
- DO NOT use such things as knives, toothpicks, matchsticks, or wires to remove the object.
- DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO REMOVE AN OBJECT THAT IS EMBEDDED IN THE EYEBALL OR THAT HAS PENETRATED THE EYE! If you see a splinter or other object sticking out from the eyeball, leave it alone! Only specially trained medical personnel can hope to save the victim's sight if an object has actually penetrated the eyeball.

Small objects that are lodged on the surface of the eye or on the membrane lining the eyelids can usually be removed by the following procedures:

1. Try to wash the eye gently with lukewarm, sterile water. A sterile medicine dropper or a sterile syringe can be used for this purpose. Have the victim lie down, with the head turned slightly to one side. Hold the eyelids apart. Direct the flow of water to the inside corner of the eye, and let it run down to the outside corner. Do not let the water fall directly onto the eyeball.
2. Gently pull the lower lid down, and instruct the victim to look up. If you can see the object, try to remove it with the corner of a clean handkerchief or with a small moist cotton swab. You can make the swab by twisting cotton around a wooden applicator, not too tightly, and moistening it with sterile water.

   CAUTION: Never use dry cotton anywhere near the eye. It will stick to the eyeball or to the inside of the lids, and you will have the problem of removing it as well as the original object.

1. If you cannot see the object when the lower lid is pulled down, turn the upper lid back over a smooth wooden applicator. Tell the victim to look down. Place the applicator lengthwise across the center of the upper lid. Grasp the lashes of the upper lid gently but firmly. Press gently with the applicator. Pull up on the eyelashes, turning the lid back over the applicator. If you can see the object, try to remove it with a moist cotton swab or with the corner of a clean handkerchief.
2. If the foreign object cannot be removed by any of the above methods, DO NOT MAKE ANY FURTHER ATTEMPTS TO REMOVE IT. Instead, place a small, thick gauze dressing over both eyes and hold it in place with a loose bandage. This limits movement of the injured eye.
3. Get medical help for the victim at the earliest opportunity.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Head_&_Facial_Injuries&oldid=1165636

Principal Authors: Mike.lifeguard

First Aid/Suspected Spinal Injury

Introduction

The spinal cord is a thick nerve that runs down the neck and back; it is protected by bones called vertebrae. If the spinal cord is injured, this can lead to paralysis. Since the vertebrae protect the spinal cord, it is generally difficult to cause such an injury. Note that only an x-ray can conclusively determine if a spinal injury exists. If a spinal injury is suspected, the victim **must** be treated as though one does exist.

Recognition

- Mental confusion (such as paranoia or euphoria)
- Dizziness
- Head, neck or back pain
- Paralysis
- Any fall where the head or neck has fallen more than two metres (just over head height on an average male)
- Cerebrospinal fluid in the nose or ears
- Resistance to moving the head
- Pupils which are not equal and reactive to light
- Head or back injury
- Priapism

Treatment

☆ Best Practice
Life over limb: Immobilize the spine as best as you can, but Airway, Breathing and Circulation take priority.

The victim should not be moved unless absolutely necessary. Without moving the victim, check if the victim is breathing. If they are not, CPR must be initiated; the victim must be rolled while attempting to minimize movement of the spine. If the victim is breathing, immobilize their spine in the position found. The easiest way to immobilize the spine in the position found is sandbagging. Despite the name, it doesn't necessarily require bags of sand. Simply pack towels, clothing, bags of sand etc. around the victim's head such that it is immobilized. Be sure to leave their face accessible, since you'll need to monitor their breathing.

If you must roll the victim over to begin CPR, take great care to keep their spine immobilized. You may want to recruit bystanders to help you. Hands-on training is the only way to learn the various techniques which are appropriate for use in this situation.

Aquatic Spinal Injury Management

Many spinal injuries are the result of a dive into shallow water. Lifeguards and lifesavers receive specialized training to manage spinal injuries in the water. Such hands-on training is the only way to learn the various techniques which are appropriate for use in such situations.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Suspected_Spinal_Injury&oldid=1244199

Principal Authors: Mike.lifeguard, Owain.davies, L337p4wn, Mike6271

Environmental illness & injury

First Aid/Heat-Related Illness & Injury

Burns

For burns, see Thermal Burns

Heat Cramps

Heat cramps usually occur when a person has been active in hot weather and is dehydrated.

Treating heat cramps is very simple, do the following:

- Remove the victim from the hot environment, a shady area will suffice.
- Stretch the calf and thigh muscles gently through the cramp. This usually results in immediate relief.
- Hydrate the victim, use a small concentration of salt for best results. (*ex. Giving the person a saltine cracker to eat while drinking.*)
- Have the victim rest.

Should the cramping continue, seek further medical advice.

Heat Exhaustion

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

Symptoms of Heat Exhaustion

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

Treatment of Heat Exhaustion

- Loosen the clothing.
- Apply cool wet cloths.
- Move the victim to either a cool or an air-conditioned area, and fan the victim.

The treatment priority for heat exhaustion is to cool the victim. Heat exhaustion is not life-threatening (unlike heat stroke), so EMS is not needed unless the victim's condition worsens to the point of entering heat stroke. If the victim's level of consciousness is affected, that is heat stroke.

Heat Stroke

Heatstroke occurs when the core body temperature rises too far for the body's natural cooling mechanisms to function. It is a serious, life-threatening problem that can cause death in minutes. The treatment priority with heat stroke is to call EMS and *cool the victim down*.

When you provide first aid for heatstroke, remember that this is a true life-and-death emergency. The longer the victim remains overheated, the higher the chances of irreversible body damage or even death occurring.

Symptoms of Heat Stroke

- Unconscious or has a markedly abnormal mental status
- Flushed, hot, and dry skin (although it may be moist initially from previous sweating or from attempts to cool the person with water)
- May experience dizziness, confusion, or delirium
- May have slightly elevated blood pressure at first that falls later
- May be hyperventilating
- Rectal (core) temperature of 105°F or more

Treatment of Heatstroke

- Notify EMS.
- Cool the victim's body immediately by dousing the body with cold water.
- Apply wet, cold towels to the whole body.
- Pack ice into the victim's heat-loss areas (underarms, groin, neck). Do not let ice contact the victim's bare skin as this may cause frostbite!
- Wetting and Evaporating measures work best. (Think, artificial sweating.)
- Move the victim to the coolest possible place and remove as much clothing as possible (ensure privacy).
- Maintain an open airway.
- Expose the victim to a fan or air-conditioner since drafts will promote cooling.
- Immersing the victim in a cold water bath is also effective.
- Give the victim (if conscious) cool water to drink.
- Do **not** give any hot drinks or stimulants.
- **Never** give an unconscious victim something to drink as it may obstruct the airway or cause vomiting.

- Get the victim to a medical facility as soon as possible. Cooling measures must be continued while the victim is being transported.

Monitor the victim's vital signs frequently. Be prepared to begin CPR should the victim become unconscious and not be breathing.

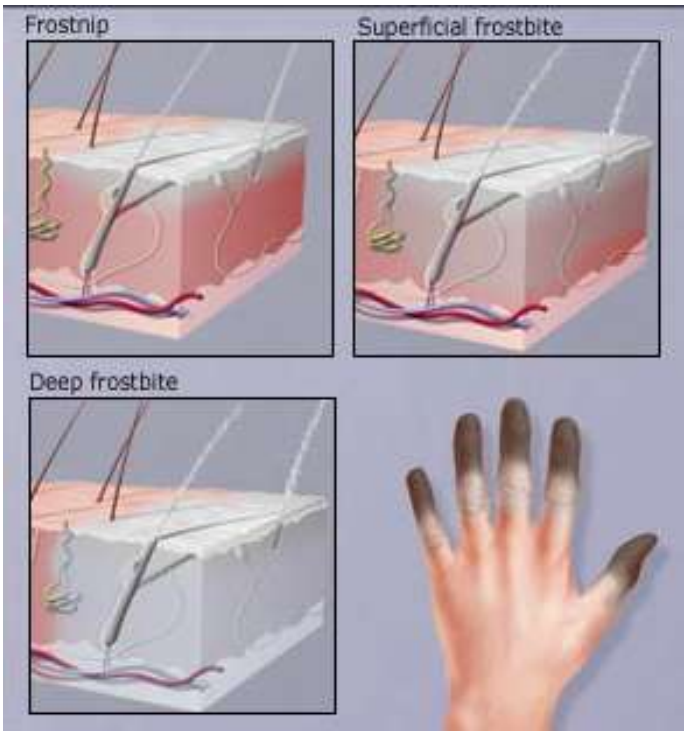
Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Heat-Related_Illness_&_Injury&oldid=1164334

Principal Authors: Mike.lifeguard, Nugger, Mike6271

First Aid/Cold-Related Illness & Injury

Frostbite

Frostbite is when tissues freeze. If the frozen tissue is more than skin deep, this is considered *deep* frostbite.



Three types of frostbite

Treatment for frostbite is as follows:

- Notify EMS as soon as possible or be prepared to transport victim to a medical facility, even after treatment of frostbite.
- Make sure there is no risk of re-freezing. Skin that re-freezes after thawing will have more damage.
- Remove victim from cold environment, ensure there is no possibility of hypothermia. (If there is, see below.)
- Fill a shallow container with enough water to cover the frostbitten body part. Make sure the water is at room temperature. The water does not have to be cool, but it cannot be too warm. The warmer the water, the worse the pain.
- Immerse the injured area, ensure that the skin does not come into contact with anything!
- Repeat the above step by refreshing the water as it cools until the skin is back to a normal color and texture. This may take several hours depending on the severity of the injury.

Remember to transport the victim to a medical assistance for further assessment after the above steps.

Hypothermia

Hypothermia is when the body's core temperature drops so low the body can no longer warm itself back up. Severe hypothermia is classified as when the body drops below 95 degrees Fahrenheit.

Treatment for victims of hypothermia is as follows:

Don't do this!
Never jostle a victim of extreme hypothermia as this may cause cardiac arrest!

- Remove the victim from the cold environment.
- For cases of extreme hypothermia, where the patient is showing signs of confusion, slurred speech, fumbling hands, or go unconscious, notify EMS.
- Remove wet clothing from the victim and replace with dry clothing. (A dry hat is recommended to be worn.)
- Wrap victim in blankets.
- Use heat packs to warm the patient. Do not allow the packs to touch naked skin.
- Victims who are Alert may drink warm liquids, however, do **not** give any drinks containing alcohol, caffeine, or give a drink that is too hot.

Warning: Victims of hypothermia may become worse as they warm, this is due to cold blood moving towards the core of the body. If a patient goes unconscious, check their ABCs and notify EMS.

"*Nobody's dead until they're warm and dead*" First aid procedures must therefore continue until professional help is available.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Cold-Related_Illness_&_Injury&oldid=1164319

Principal Authors: Mike.lifeguard, Mike6271, Nugger

First Aid/Pressure-Related Illness & Injury

Pressure-Related Illness & Injury

Divers and swimmers alike must avoid injuries caused by changes in air pressure. The weight of the water column above the diver causes an increase in air pressure in any compressible material (wetsuit, lungs, sinus) in proportion to depth, in the same way that atmospheric air causes a pressure of 14.7 lbs per square inch at sea level. These pressure injuries & illnesses are most common in divers, but some can affect skin divers (snorkellers) or swimmers.

Treatment

- Call EMS
- Monitor ABCs and vitals
- Raise the victim's legs and feet if possible

  If there are bubbles present in the bloodstream, this will help keep them from the internal organs. Bubbles tend to travel up - away from the brain (preventing stroke) and heart (preventing heart attack).
- Recompression may be required; tell EMS that the situation involves a pressure-related injury or illness
- If you are trained in oxygen administration and have the appropriate equipment, administer high-flow O_2

Decompression Sickness (the Bends)

As divers ascend, the pressure the water column exerts on them decreases, which decreases the solubility of gasses. Those gases will no longer stay dissolved in the bloodstream, and escape at a maximum rate. If the ascent is faster than the rate that the gases can escape from the bloodstream is, then the gases form bubbles. The location of these bubbles determines what type of decompression sickness develops; if the bubbles form in the lungs, then air embolism develops.

Recognition

Bubbles can form anywhere in the body, but symptomatic sensation is most frequently observed in the shoulders, elbows, knees, and ankles.

This table gives symptoms for the different DCS types.

- The "bends" (joint pain) accounts for about 60 to 70 percent of all altitude DCS cases, with the shoulder being the most common site. These types are classifed medically as DCS I.
- Neurological symptoms are present in 10 to 15 percent of all DCS cases with headache and visual disturbances the most common. DCS cases with neurological symptoms are generally classified as DCS II.
- The "chokes" are rare and occur in less than two-percent of all DCS cases.
- Skin manifestations are present in about 10 to 15 percent of all DCS cases.

Signs and symptoms of decompression sickness.

DCS Type	Bubble Location	Signs & Symptoms
BENDS	Mostly large joints of the body (elbows, shoulders, hip, wrists, knees, ankles)	• Localized deep pain, ranging from mild (a "niggle") to excruciating. Sometimes a dull ache, but rarely a sharp pain. • Active and passive motion of the joint aggravates the pain. • The pain may be reduced by bending the joint to find a more comfortable position. • If caused by altitude, pain can occur immediately or up to many hours later.

NEUROLOGIC	Brain	• Confusion or memory loss • Headache • Spots in visual field, tunnel vision, double vision, or blurry vision • Unexplained extreme fatigue or behaviour changes • Seizures, dizziness, vertigo, nausea, vomiting and unconsciousness may occur
	Spinal Cord	• Abnormal sensations such as burning, stinging, and tingling around the lower chest and back • Symptoms may spread from the feet up and may be accompanied by ascending weakness or paralysis • Girdling abdominal or chest pain
	Peripheral Nerves	• Urinary and rectal incontinence • Abnormal sensations, such as numbness, burning, stinging and tingling • Muscle weakness or twitching
CHOKES	Lungs	• Burning deep chest pain (under the sternum) • Pain is aggravated by breathing • Shortness of breath • Dry constant cough
SKIN BENDS	Skin	• Itching usually around the ears, face, neck arms, and upper torso • Sensation of tiny insects crawling over the skin • Mottled or marbled skin usually around the shoulders, upper chest and abdomen, with itching • Swelling of the skin, accompanied by tiny scar-like skin depressions

Oxygen Toxicity

Oxygen toxicity occurs when oxygen in the body exceeds a safe level.

Recognition

- Dizziness
- Nausea and twitching, especially on the face
- Seizures
- Unconscioussness

Air Embolism

As divers ascend, the pressure the water column exerts on them decreases, which decreases the solubility of gasses. Those gases will no longer stay dissolved in the bloodstream, and escape at a maximum rate. If the ascent is faster than the rate that the gases can escape from the bloodstream is, then the gases form bubbles. The location of these bubbles determines what type of decompression sickness develops; if the bubbles form in the lungs, then air embolism develops.

Air embolism can also develop when a diver receives pressure damage to their lungs following a rapid ascent where the breath is inappropriately held against a closed glottis, allowing pressure to build up inside the lungs, relative to the blood. The gas bubbles can impede the flow of oxygen-rich blood to the brain and vital organs. They can also cause clots to form in blood vessels.

Gas embolism and decompression sickness (DCS) may be difficult to distinguish, as they may have similar symptoms, especially in the central nervous system. The treatment for both is the same, because they are both the result of gas bubbles in the body.

Shallow-Water Blackout

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Pressure-Related_Illness_&_Injury&oldid=1164347

Principal Authors: Mike.lifeguard

Medical conditions & poisoning

First Aid/Diabetes

Introduction

Diabetes

a disease causing an inability to regulate the level of sugar (glucose) in the blood

Insulin

a hormone that allows glucose to travel from the bloodstream into the cells

Hypoglycemia (Insulin Shock)

Hypoglycemia is a condition in which blood sugar levels are too low to power the body. The symptoms of hypoglycemia will come on suddenly.

Causes

- Lack of food (low glucose)
- Excessive exercise
- Too much insulin
- Vomited meal

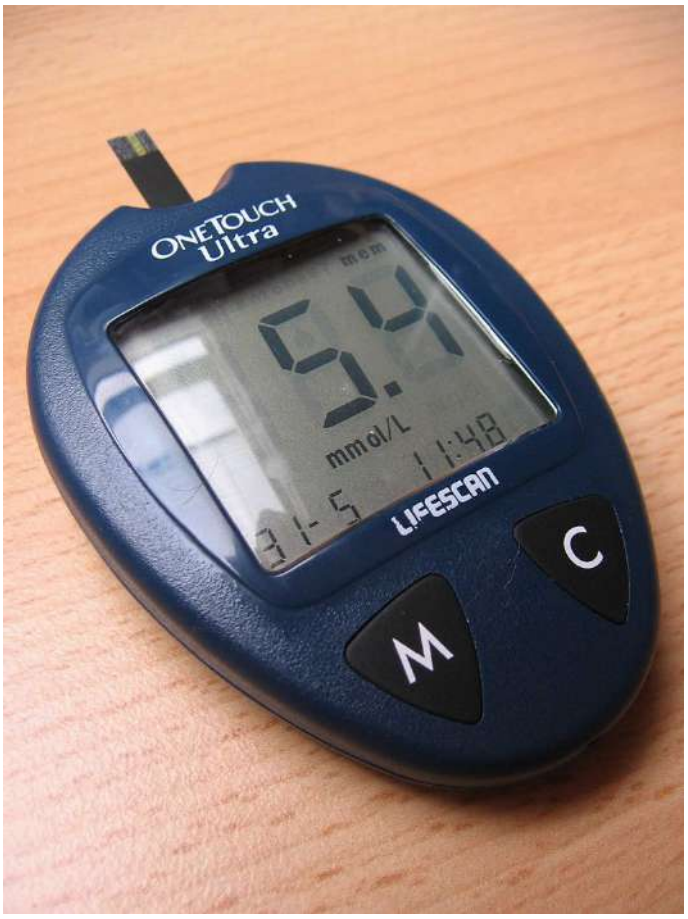
Recognition

- Pale, cool, clammy
- Dizziness, weakness
- Hunger
- Confusion (like being drunk)
- Strong, rapid pulse (May be normal in some patients)
- Seizures

May be confused with stroke or other cardiac disorders.

Treatment

- EMS
- Monitor ABCs
- Assist with glucose in any form (candy, juice, Monogel), but only if the victim is fully conscious
- Treat for shock
- **Encourage any victim of a diabetic emergency to use their test kit if it is nearby.**
- Giving glucose to a victim with insulin shock will help.
- **Don’t give glucose to an unconscious victim** as it can easily become an airway obstruction.
- Some victims carry with them glucagon injections as a rapid treatment for severe insulin shock. The victim should know how to administer it, and should administer it himself.



If possible, have the victim test the glucose level to correctly identify Hypoglycemia or Hyperglycemia.

Hyperglycemia

Hyperglycemia is a condition in which the body's blood sugar level is too high to maintain. This condition is less common and usually occurs very slowly, over the course of several days.

Causes

- Victim doesn’t take enough insulin
- Eats too much (high glucose)
- Has an infection

Recognition

- Flush/redness of skin
- Deep or rapid respirations
- Dehydration/extreme thirst/excessive urination
- Loss of appetite
- Weak/dizzy
- Weak, rapid pulse

Treatment

- EMS
- Monitor ABCs
- Treat shock
- **Encourage any victim of a diabetic emergency to use their test kit if it is nearby.**
- Some victims carry with them insulin injections as a rapid treatment for hyperglycemia. Assist them if required.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Diabetes&oldid=1164323

Principal Authors: Mike.lifeguard, Nugger, Mike6271

First Aid/Seizures

Introduction

A seizure occurs when the electrical activity of the brain becomes irregular. When the electrical activity is severely irregular, the result may be a seizure. *A seizure is a medical emergency.* Seizures may be caused by either an acute or chronic condition such as epilepsy.

Random, uncontrolled electrical activity in the brain causes seizures.

Risk Factors for Seizures:

- Head trauma
- Infections of the brain or spinal cord
- Epilepsy
- Stroke
- Drug use or withdrawal
- Hypoglycemia (Low Blood Sugar)
- Heat Stroke
- Fever in infants

Often before a seizure occurs, the victim may feel an aura, which is an unusual sensation that typically precedes seizures. Auras may come in many forms; often if the person is epileptic, they may be aware that a seizure is imminent and may tell others or sit or lie down to prevent injury.

Recognition

Typically seizures usually last no more than three minutes. Some common occurrences during a seizure include stopped or irregular breathing, body rigidness or convulsing, defecation, urination, and drooling.

Treatment

Don't do this!
Never try to restrain the seizure **Never** put anything in the mouth

Seeing a seizure may be a frightening experience which may cause you hesitation to act to aid the victim. However, it is very easy to care for the victim. **Never** attempt to hold them in any way to stop their seizure - the victim is unaware that it is occurring and is unable to control it. Attempting to restrain an individual having a seizure may result in injuries to both you and the victim. Also, **do not** attempt to stick anything into the victim's mouth - the victim will not swallow their tongue and sticking something in their mouth can cause further injury or death. The tongue may obstruct the airway during the seizure, but this is normal.

Care for Seizures:

1. Call EMS or have someone call for you
2. Move anything the victim can injure themselves with away from the victim such as chairs or other objects
3. Gently support the victim's head to prevent it from hitting the ground
4. Request that all bystanders move away (persons having a seizure are often embarrassed after their seizure)
5. After the seizure has ended, roll the victim into the recovery position **but only if you do not suspect a spinal injury**

After the seizure, the victim will slowly "awaken." Ensure that bystanders are away and offer reassurance for the victim. Victims who have a seizure in public are often self-conscious about their condition. The victim will be very tired after his seizure. Continue to reassure the victim until he or she is fully aware of the surroundings or until EMS arrives.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Seizures&oldid=1164352

Principal Authors: Mike.lifeguard, Mike6271, ChopStick, Jomegat

First Aid/Poisoning

Poisoning

Specific information concerning treatment can be obtained from accompanying labels or written documentation such as the MSDS (Material Safety Data Sheet). Expert advice (poison control) and rapid transport to advanced medical care (EMS) is urgently needed in poisoning cases.

A poisoning victim may require basic life support at any moment; monitor the victim's ABCs throughout.

Absorption

Background

Absorbed poisons are taken into the body through unbroken skin. Absorbed poisons are especially dangerous as they may not only cause local damage, but they can enter the bloodstream and cause widespread damage. It is important to note that certain poisons such as agricultural chemicals or insecticides may enter the bloodstream through absorption while leaving the skin undamaged.

Treatment

As with any type of poisoning EMS should be immediately called and the rescuer should always start with the initial assessment and treat any life-threatening problems before continuing. Once all life-threats are taken care of, then the poison should be removed. Removing:

- Powders: Wearing gloves, brush the powder off the victim, then irrigate the affected area with plenty of water for at least 20 minutes
- Liquids: Flush with clean water for at least 20 minutes
- Chemical in Eyes: Flush with clean water for at least 20 minutes

With all absorbed chemicals, it is crucial to remove the chemical immediately to prevent further damage to the victim.

Inhalation

Inhalation injuries can come from a variety of sources including the inhalation of smoke, gasses, and chemicals. Get victim to fresh air. Use caution in giving rescue breathing to a person overcome by hazardous chemicals, as you may be contaminated in so doing.

Ingestion

Internal poisoning may not be immediately apparent. Symptoms, such as vomiting are sufficiently general that an immediate diagnosis cannot be made. The best indication of internal poisoning may be the presence of an open container of medication or toxic household chemicals. Check the label for specific first aid instructions for that specific poison.

Call for help immediately as advanced medical care will be required. If possible contact a poison control center and provide information about the suspected poison. Depending on the type of poison, the poison control center may suggest additional first aid measures

pending the arrival of emergency medical technicians. These might include dilution with water or milk, administration of syrup of ipecac or activated charcoal, or the use of other common household products as improvised emergency antidotes. *Do not apply such measures without the benefit of expert advice*.

Appropriate first aid measures vary depending on the type of poison. Induced vomiting may do more harm than good, because the poison may harm the alimentary canal or esophagus. Vomit may also block the airway. However, induced vomiting may be necessary with some poisons to save the victim's life.

Injection

An injection poisoning can occur from a variety of sources. From drug abuse to insect bites/stings to animal bites. Poison Control Centers will provide the best information for first aiders. Basic treatment involves monitoring the patients ABCs, treating for shock, observing the patient for an allergic reaction, and calming the patient.

To help EMS, gain as much information about the poison as you can. What it was, when it was injected, how it was injected, and if the person has any allergies to the injection. (For example a bee sting causing anaphylaxis.)

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Poisoning&oldid=1167235

Principal Authors: Mike.lifeguard, Mike6271, Nugger

Advanced topics

First Aid/Airway Management

Airway Management

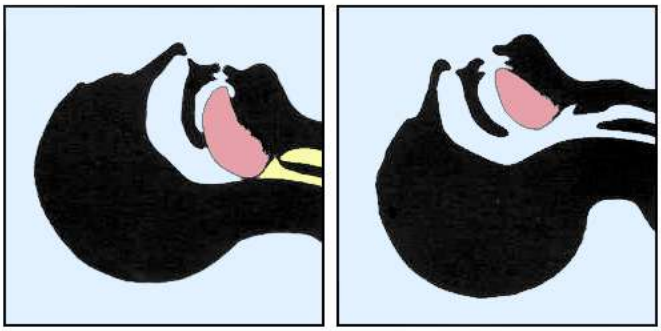
Airway management is the process of ensuring that:

1. there is an open pathway between a patient's lungs and the outside world, and
2. the lungs are safe from aspiration

Manual methods

Head tilt/Chin lift

The simplest way of ensuring an open airway in an unconscious patient is to use a head tilt chin lift technique, thereby lifting the tongue from the back of the throat.



The head-tilt chin-lift is the most reliable method of opening the airway.

Jaw thrust

ILCOR no longer advocates use of the jaw thrust, even for spinal-injured victims. Instead, continue use of the head-tilt chin-lift. If there is no risk of spinal injury, it is preferable to use the head-tilt chin-lift procedure which is easier to perform and maintain.

Oral Airways

There are a variety of artificial airways which can be used to keep a pathway between the lungs and mouth/nose.

An oropharyngeal airway can be used to prevent the tongue from blocking the airway. When these airways are inserted properly, the rescuer does not need to manually open the airway. Aspiration of blood, vomitus, and other fluids can still occur.

It is only possible to insert an oral airway when the patient is completely unconscious or does not have a gag reflex. If the patient begins to gag after inserting the oral airway, remove it immediately.

Oropharyngeal airways come in a variety of sizes; measure from the angle of the chin (or earlobe) to the corner of the mouth.

Use and contraindications

The correct size is chosen by measuring against the patient's head (from the earlobe to the corner of the lips). The airway is then inserted into the patient's mouth upside down. Once contact is made with the back of the throat, the airway is rotated 180 degrees, allowing for easy insertion, and assuring that the tongue is secured. Measuring is very important, as the flared ends of the airway must rest securely against the lips to remain secure.

To remove the device, it is pulled out following the curvature of the tongue; no rotation is necessary.

The airway does not remove the need for the recovery position: it does not prevent suffocation by liquids (blood, saliva, food, cerebrospinal fluid) or the closing of the glottis.

The mains risks of its use are:

- if the patient has a gag-reflex they may vomit
- when it is too large, it can close the glottis and thus close the airway
- inproper sizing can cause bleeding in the airway

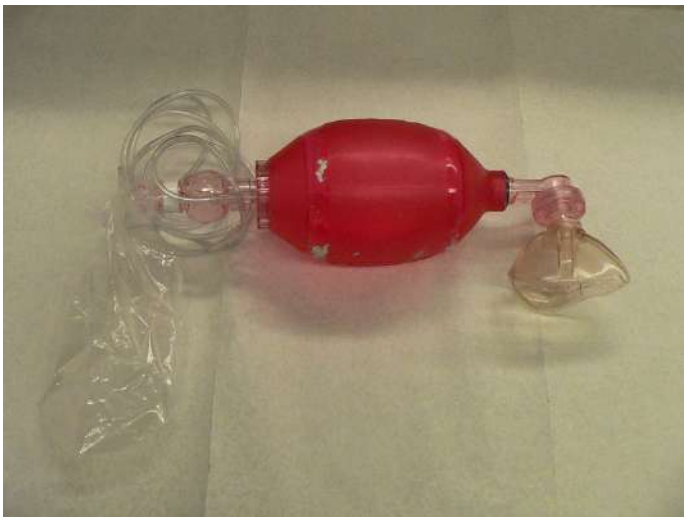
Bag-Valve-Mask (BVM)

See also: Oxygen Administration

A **bag valve mask** (also known as a **BVM** or **Ambu bag**, which is a brand name) is a hand-held device used to provide ventilation to a victim who is not breathing. The device is self-filling with air, although additional O_2 can be added.

Use of the BVM to ventilate a victim is frequently called "bagging." Bagging is regularly necessary when the victim's breathing is insufficient or has ceased completely. The BVM is used in order to manually provide mechanical ventilation in preference to mouth-to-mouth resuscitation (either direct or through an adjunct such as a pocket mask).

Components



A bag-valve-mask

The BVM consists of a flexible air chamber, about the size of an American football, attached to a face mask via a shutter valve. When the air chamber or "bag" is squeezed, the device forces air into the victim's lungs; when the bag is released, it self-inflates, drawing in ambient air or oxygen supplied from a tank. A bag valve mask can be used without being attached to an oxygen tank to provide air to the victim, but supplemental oxygen is recommended since it increases the amount of oxygen reaching the victim. Some devices also have a reservoir which can fill with oxygen while the patient is exhaling (a process which happens passively), in order to increase the amount of oxygen that can be delivered to the victim by about twofold. A BVM should have a valve which prevents the victim from rebreathing exhaled air and which can connect to tubing to allow oxygen to be provided through the mask.

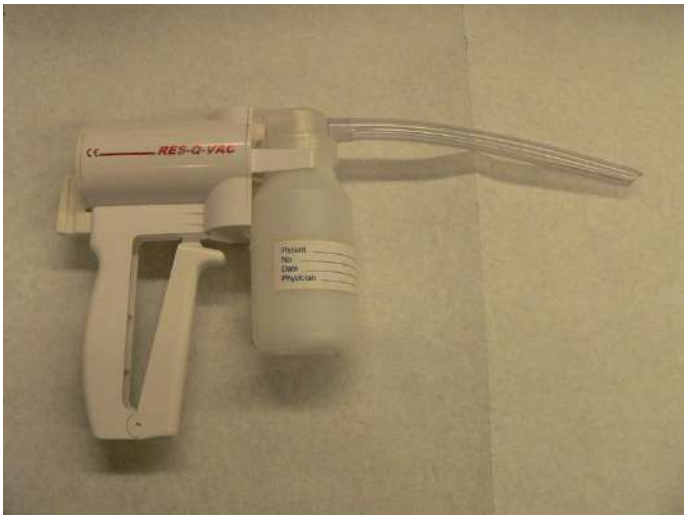
Bag valve masks come in different sizes to fit infants, children, and adults. Some types of the device are disposable, while others are designed to be cleaned, disinfected, and reused.

Use

The BVM directs the gas inside it via a one-way valve when compressed by a rescuer; the gas is then delivered through a mask and into the victim's airway and into the lungs. In order to be effective, a BVM must deliver between 700 and 1000 milliliters of air to the victim's lungs, but if oxygen is provided through the tubing and if the victim's chest rises with each inhalation (indicating that adequate amounts of air are reaching the lungs), 400 to 600 ml may still be adequate. Squeezing the bag once every 5 seconds for an adult or once every 3 seconds for an infant or child provides an adequate respiratory rate (12 respirations per minute in an adult and 20 per minute in a child or infant).

Professional rescuers are taught to ensure that the mask portion of the BVM is properly sealed around the patient's face (that is, to ensure proper "mask seal"); otherwise, air escapes from the mask and is not pushed into the lungs. In order to maintain this seal, some protocols use a method of ventilation involving two rescuers: one rescuer to hold the mask to the patient's face with both hands and ensure a mask seal, while the other squeezes the bag. However, to make better use of available rescuers, the BVM can be operated by a single rescuer who holds the mask to the victim's face with one hand (using a C-grip), and squeezes the bag with the other.

When using a BVM, as with other methods of ventilation, there is a risk of overinflating the lungs. This can lead to pressure damage to the lungs themselves, and can also cause air to enter the stomach, causing gastric distention which can make it more difficult to inflate the lungs and which can cause the victim to vomit. This can be avoided by care on behalf of the rescuer. Alternatively, some models of BVM are fitted with a valve which prevents overinflation, by blocking the outlet pipe when a certain pressure is reached, though they should all be able to be bypassed in a situation where more pressure is needed, such as in anaphylaxis.



Manual suction devices require specific training and certification

Suction Devices

In the case of a victim who vomits or has other secretions in the airway, these techniques will not be enough. Suitably trained first aiders may use suction to clean out the airway, although this may not always be possible. A unconscious victim who is vomiting or has copious secretions in the mouth should be turned into the semi-prone position when there is no suction equipment available, as this allows (to a certain extent) the drainage of fluids out of the mouth instead of down the trachea.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Airway_Management&oldid=1210752

Principal Authors: Mike.lifeguard, PeregrineAY, Mike6271, Owain.davies, Delldot, Groggy Dice, Adjusting, Infrangible, JoJan

First Aid/Oxygen Administration

Oxygen Administration

Nasal Cannula

The **nasal cannula** is a thin tube with two small nozzles that protrude into the victim's nostrils. It can only provide oxygen at low flow rates: 2-6 liters per minute, delivering a concentration of 28-44%. Use of the nasal cannula at higher flow rates than 6 liters per minute can cause discomfort by drying the nasal passages and pain from the force of the oxygen.

Oxygen kit showing a demand valve and a constant flow mask.

Bag-Valve-Mask

See also: Bag-Valve-Mask

The task of administrating oxygen with bag-valve-mask (BVM) is not very demanding, and requires only one hand to squeeze the bag and one to maintain a good seal with the mask. Thus, this task can advantageously be achieved by one rescuer, who will then keep their mind free and, being at the head of the victim, have a good view of the overall situation. The head of the victim can be secured between the knees of the BVM operator. The bag-valve-mask (BVM) is used for victims in critical condition who require pure oxygen. A reservoir bag is attached to a central cylindrical bag, attached to a valved mask that administers 100% concentration oxygen at 8-15LPM. The central bag is squeezed manually to ventilate the victim.

Non-rebreathing Mask

⚠ Caution
Do not allow grease or oils to come in contact with or be near oxygen tanks at ANY time. This can cause explosive combustion!

The **non-rebreathing mask** (NRB) is utilized for patients with multiple trauma injuries, chronic airway limitation/chronic obstructive pulmonary diseases, smoke inhalation, and carbon monoxide poisoning, or any other patient that requires high-flow oxygen, but does not require breathing assistance. It has an attached reservoir bag where oxygen fills in between breaths, and a valve that largely prevents the inhalation of room or exhaled air. This allows the administration of high concentrations of oxygen, between 65-85%. This device is set to 10-15 lpm, or at least enough to keep the reservoir inflated between breaths. Due to the poor seal on a patient's face, it is exceedingly difficult to obtain anything approaching 100% oxygen with this device. While some patients with Chronic Obstructuve Pulmonary Disease (COPD) rely on what is called hypoxic drive, high flow

oxygen should never be witheld from COPD patients who require it.

Pocket Mask

The **pocket mask** is a small device that can be carried on one's person. It is used for the same victims that the BVM is indicated for, but instead of delivering breaths by squeezing a reservoir, the first aider must actually exhale into the mask. Pocket masks normally have one-way valves built into them to protect against cross-contamination. Many masks also have an oxygen intake built-in, allowing for administration of 50-60% oxygen.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Oxygen_Administration&oldid=1219587

Principal Authors: Mike.lifeguard, Nugger, Mike6271, CommonsDelinker

First Aid/Automated External Defibrillation

D for Defibrillation

Defibrillation is an essential part of resuscitation. Survival chances of a fibrillating victim (ventricular fibrillation or ventricular tachycardia) start at 90% if defibrillated immediately and decrease by 10% every minute. Should a victim be in cardiac arrest and require defibrillation, it is crucial that EMS is called **immediately**.

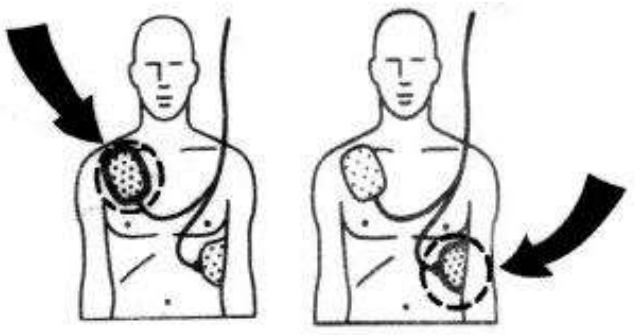
Defribrillation operations start by exposing the chest, and removing all metallic items (jewelery, nipple piercings, etc). Prior to the application of the defibrillation pads, shaving the chest of exceptionally hairy victims is advised to increase conductivity to the chest and reduce the chance of burns, though shaving the chest should only be performed if a razor is readily available and will not delay defibrillation by more than 20 seconds. It is also crucial that you remove any patches (especially medicine and nicotine) on the person's chest **while wearing gloves** to ensure the shock will not be interrupted by having to go through these patches. Failure to remove nicotine patches can result in a fire.

Don't do this!

Do not shock if:

- The victim is close to explosive or flammable material.
- The victim is wet (dry the victim off with a towel).
- The victim has a medicine patch on them, however, you must remove this *while wearing gloves.*
- The victim is touching an object that could conduct the charge to others. (A metal bench)

If necessary, protect the victim from water and dry them, or move the victim a few meters between each CPR cycle until the area is safe for defibrillation.
Cell phones and other electronic devices can disrupt the analyzing phase of the AED. Check for a cell phone on the patient and remove it to a distance of 6 feet or more. This will include your cell phone and any bystander who is carrying one. (If time is crucial, throw the cell phone as far as possible, don't take precious seconds to walk it somewhere. Remember, life over limb (or possessions, in this case.)



Electrode placement is crucial

Now turn on the defibrillator unless it automatically turns on once you open it. Most AED units will give clear voice instructions; follow the prompts. Once the chest is exposed, you are to place the electrodes: one on the left side, under the arm, and the other over the right breast. The location of pad placement is clearly depicted on each pad; they must go exactly as shown in the picture. Once connected, the defibrillator will automatically start monitoring the heart's electrical activity to determine whether a shock is appropriate. Some defibrillators require the user to press an analyze button before the machine will analyze the heart rhythm. The machine will clearly talk you through all steps of the process.

CPR must be stopped while the defibrillator is monitoring the victim's heart activity. In all cases, defibrillation has priority over CPR. Do not touch the victim or the AED - if you do, you could interfere with the analysis.

If the AED advises a shock, the operator will say "I'm Clear, you're clear, we're all clear" while ensuring that the operator is not touching the victim or standing in a wet environment next to the victim that could conduct electricity through the rescuer. The AED operator is also making sure that all other people surrounding the victim are clear. The final "we are all clear" ensures a double check to ensure that everyone is away from the victim. If the victim is being given oxygen supplementation, the equipment must be removed at this point. The AED will shock the victim; the operator may be required to press a *shock* button. **Touching the victim is potentially fatal** when the shock is administrated. After the shock has been delivered, it is safe to touch the victim; no electricity will remain in them. The defibrillator will advise you what to do next - usually you'll be told to begin chest compressions and rescue breaths again.

AEDs are being deployed in public places including the Amsterdam airport.

Defibrillators can also be used for monitoring and recording purposes; a different set of electrodes is available on some defibrillators for cardiac monitoring, though most defibrillators have the cardiac monitoring located within the pads. Because cardiac monitoring (ECG) is an advanced skill, it will not be covered in this section. Should fibrillation occur when the monitoring patches are on, the defibrillator will ask the operator to change patches, though most automatically analyze the patient through the two main patches every 2 minutes or whenever the analyze button is pressed.

Note: Defibrillators are often quite graphically pictured in films and television shows. Actually, defibrillation might induce some contractions in the muscles of the patient, but in no case will the patient jump. In most television shows, the paddles are used which may make a rescuer feel apprehensive about defibrillating a patient if they believe that they have to gel the paddles then rub them together before shocking the patient. All AEDs used in the public access setting have two pre-gelled patches that are easily placed onto the patient's skin. This keeps the rescuer at a further distance from the patient during the shocking and enables the patches to stay on continuously during the resuscitation efforts.

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Automated_External_Defibrillation&oldid=1318487

Principal Authors: Mike.lifeguard, Geoff Plourde, Nugger

Appendices

First Aid/Appendix A: Glossary

Abrasion

A superficial wound in which the topmost layers of the skin are scraped off

AED

Automated External Defibrillator

Airway

The passages which transfer air from the outside environment to the lungs; the tracha, bronchi, bronchioles and alveoli

Artery

A blood vessel carrying blood away from the heart; contains oxygen-rich, high-pressure blood in the systemic cardiorespiratory system

Avulsion

A tearing away of a section of skin from the layers of tissue beneath it

Bystander

Any person, trained or untrained, who assists in an emergency situation, but not as part of a duty of employment

Capillary

The smallest blood vessels in the body; the skin is rife with capillaries

Carotid artery

The main artery providing blood supply to the head.

Causation

Determination of whether the defendant's actions are causally linked to any harm

Circulation

The movement of blood throughout the body; performed by the heart

Consciousness (level of)

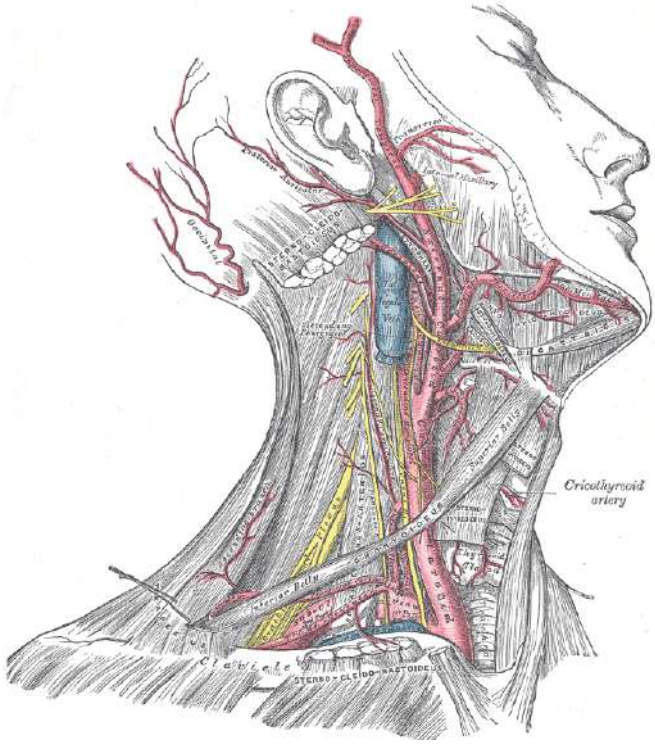
A state of awareness or lack thereof

Consent

A legal condition whereby a person can be said to have given consent based upon an appreciation and understanding of the facts and implications of an action

CPR

Cardiopulmonary resuscitation



The carotid artery is the largest artery shown here; click for a larger version.

Cyanosis

The bluish coloration of the skin due to the presence of deoxygenated blood near the skin surface; occurs when the oxygen saturation of arterial blood falls below 85%

Defibrillation

Delivering a therapeutic dose of electrical energy to the affected heart with a device called a defibrillator

Diabetes

a disease causing an inability to regulate the level of sugar (glucose) in the blood

Distal

The point on a limb furthest from its point of attachment to the body

Duty of Care

A legal obligation imposed on an individual requiring that they exercise a reasonable standard of care while performing any acts that could foreseeably harm others

EMS

Emergency Medical System

History

One of the 3 parts of a secondary survey

Hypoxia

A condition in which insufficient oxygen reaches body tissue

Incision

A clean cut caused by a sharp-edged object

Insulin

a hormone that allows glucose to travel from the bloodstream into the cells

Laceration

Irregular wounds caused by a blunt impact to soft tissue which lies over hard tissue; tearing of skin

Landmark

The location of compressions; on the midline of the chest, even with the nipples

Liability

A legal doctrine that makes a person responsible for the damage and loss caused by their acts and omissions regardless of culpability; the requirements to prove liability are a)a duty of care exists b)the standard of care was breached c)causation exists

Myocardial Infarction

Heart attack; bleeding or blockage cuts off blood flow to part of the heart muscle

Nailbed

The tissue under the nail; pinching the nail and observing the blood return to the nailbed is a good test of circulation at that location

Oedema (Edema)

Swelling in the lower legs and ankles. Oedema is caused by a fluid build-up in the body.

Semi-prone position

A position which keeps the tongue from obstructing the airway and allows any fluids to drain from the mouth *(aka recovery position)*

Standard of Care

The degree of prudence and caution required of an individual who is under a duty of care; the requirements of the standard are closely dependent on circumstances

Proximal

The point on a limb closest to its point of attachment to the body

Puncture

A wound caused by an object puncturing the skin

Vein

A blood vessel that carries blood toward the heart; most veins carry low-oxygen blood

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Appendix_A:_Glossary&oldid=1279316

Principal Authors: Mike.lifeguard, ChopStick, Mike6271

First Aid/Appendix B: Behind the Scenes

Behind the Scenes

- Where do these treatment protocols come from?
- Who decides what CPR is?
- Why is there variation in standards - isn't one way of doing things better than the others?

This section is designed to lift the hood and show you how first aid standards are derived.

ILCOR

The International Liaison Committee on Resuscitation (ILCOR) [1] was formed in 1992 to provide an opportunity for the major organizations in resuscitation to work together on CPR and ECC (Emergency Cardiovascular Care). The name was chosen in 1996 to be a deliberate play on words relating to the treatment of sick hearts - "*ill cor*" (*cœur* is French for *heart*).

ILCOR is composed of the American Heart Association (AHA), the European Resuscitation Council (ERC), the Heart and Stroke Foundation of Canada (HSFC), the Australian and New Zealand Committee on Resuscitation, the Resuscitation Councils of Southern Africa (RCSA), and the Inter American Heart Foundation (IAHF).

Mission Statement

"To provide a consensus mechanism by which the international science and knowledge relevant to emergency cardiac care can be identified and reviewed. This consensus mechanism will be used to provide consistent international guidelines on emergency cardiac care for Basic Life Support (BLS), Paediatric Life Support (PLS) and Advanced Life Support (ALS). While the major focus will be upon treatment guidelines, the steering committee will also address the effectiveness of educational and training approaches and topics related to the organisation and implementation of emergency cardiac care. The Committee will also encourage coordination of dates for guidelines development and conferences by various national resuscitation councils. These international guidelines will aim for a commonality supported by science for BLS, ALS and PLS." [2]

Objectives

- Provide a forum for discussion and for coordination of all aspects of cardiopulmonary and cerebral resuscitation worldwide.
- Foster scientific research in areas of resuscitation where there is a lack of data or where there is controversy.
- Provide for dissemination of information on training and education in resuscitation.
- Provide a mechanism for collecting, reviewing and sharing international scientific data on resuscitation.
- Produce as appropriate statements on specific issues related to resuscitation that reflect international consensus.

Activities

ILCOR meets twice each year usually alternating between a venue in the United States and a venue elsewhere in the world. ILCOR produced the first International CPR Guidelines in 2000, and revised protocols in 2005 (published concurrently in the scientific journals Resuscitation [3] and Circulation [4]). A total of 281 experts completed 403 worksheets on 275 topics, reviewing more than 22000 published studies to produce the 2005 revision. The standard revisions cycle for resuscitation is five years. The last revision was in 2005, so the next will be in 2010.

References

External links

[1] http://www.ilcor.org/
[2] Douglas Chamberlain (November-December 2005). "The International Liaison Committee on Resuscitation (ILCOR)—Past and present: Compiled by the Founding Members of the International Liaison Committee on Resuscitation". *Resuscitation* **67** (2-3): Pages 157-161. DOI: 10.1016 (http://dx.doi.org/10.1016).
[3] http://www.resuscitationjournal.com/issues/contents?issue_key=TOC@@JOURNALS@RESUS@0067@0002
[4] http://circ.ahajournals.org/content/vol112/22_suppl/

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Appendix_B:_Behind_the_Scenes&oldid=1164306

Principal Authors: Mike.lifeguard

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- St. John Ambulance NS/PEI Council. *Marine First Aid Supplement*. St. John Ambulance.

External links

Journals

- The 2005 standards from ILCOR in Circulation [1]
- The 2005 standards from ILCOR in Resuscitation [2]
- The 2005 standards from AHA in Circulation [3]

Legislation & Government regulations

- *Good Samaritan Act*, S.O. 2001, c. 2 [4]
- *First Aid Requirements*, R.R.O. 1990, Reg. 1101 [5]

First Aid Training Organizations

- National Guidelines for First Aid Training in Occupational Settings [6] | PDF [7]
- Mayo Clinic: First Aid & Self Care [8]
- Lifesaving Society [9] | PDF [10]
- American Heart Association [11] | PDF [12]

Other

- Tick removal section initially based on public domain text from the US military. [13]
  - Lyme Disease Foundation recommends the same procedure [14]
  - Evaluation of Three Commercial Tick Removal Tools [15] describes several folk remedies that are useless, and a few tools that are slightly better than tweezers.
- National Highway Traffic Safety Administration [16] | First Responder: National Standard Curriculum PDF [17]
- First Aid Basic [18]
- eMedicine: Wilderness and Travel Medicine [19]
- What to put in your medical Kit [20]
- Expedition Medical Kits [21]
- A free transparent reality simulation of the self-inflating manual resuscitator (Ambu bag) [22]
- | ERC CPR protocols in PDF format [23]
- How to Use an EpiPen [24]

External links

[1] http://circ.ahajournals.org/content/vol112/22_suppl/
[2] http://www.resuscitationjournal.com/issues/contents?issue_key=TOC@@JOURNALS@RESUS@0067@0002
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[5] http://www.canlii.org/on/laws/regu/1990r.1101/20071015/whole.html
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[13] http://chppm-www.apgea.army.mil/ento/facts/removal.html
[14] http://www.lyme.org/ticks/removal.html
[15] http://web.archive.org/web/20070701101643/http://www.biosci.ohio-state.edu/~acarolog/tickgone.htm
[16] http://www.nhtsa.dot.gov
[17] http://www.nhtsa.dot.gov/people/injury/ems/pub/frnsc.pdf
[18] http://www.total-health-care.com/first-aid/first-aid.htm
[19] http://www.emedicine.com/emerg/topic838.htm
[20] http://www.expeditionmedicine.co.uk/resource.php?id=76
[21] http://www.expeditionmedicine.co.uk/resource.php?id=27
[22] http://vam.anest.ufl.edu/checkout/check-sirb.html
[23] http://www.erc.edu/download_gl.php?d=11
[24] http://www.epipen.com/howtouse.aspx

Source: http://en.wikibooks.org/w/index.php?title=First_Aid/Appendix_C:_Sources&oldid=1164307

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First Aid/Appendix D: Notes for First Aid Instructors

Education

The teaching of first aid is in itself a valuable safety measure. Educating even a few people in first aid improves the safety of everyone they come into contact with.

Teaching first aid also provides an opportunity for teaching safety, prevention and risk reduction measures at the same time, as part of the first aid curriculum.

A person trained in first aid is more motivated to avoid personal injury, because their first aid training gives them a greater appreciation of the potential serious consequences.

Last but not least, someone trained in first aid can be taught to appreciate the importance of safety, prevention and risk reduction. This makes them an ideal advocate for spreading safety awareness to others in their organization or family. This "peer to peer" education can be very valuable.

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First Aid/Appendix E: First Aid Kits

First Aid Kits

Everyone should have a well-stocked first aid kit for in the car, at home, and other events. For first aid kits in the workplace, there will be legislation which specifies what must be present; this will depend on the size and type of the workplace. Make sure you know where first aid kits are located, whether at home, at work, or at play. First aid kits should be clearly marked; in the workplace, there should be sufficient indication of the kit's location for those who are unfamiliar with it's location to identify it.

First aid kits must be kept well-stocked; supplies do expire, and must be replaced periodically. Consider creating a schedule for checking that the kit is stocked, and replacing any expired items as required. Quantities below are guidelines; you should determine what is required based on the kit's expected use.

If possible use a bright-colored, watertight plastic container. Tool boxes are popular, or it may be worthwhile to purchase a kit made specifically for this purpose.

The same kit at the left, packed into a single water-tight plastic bag.

This first aid kit was packed for a trip to the tropics.

Recommended Contents

Item	Home	Car	Wilderness	Workplace (<5 workers)[1]	Workplace (5-15 workers)	Workplace (15-200 workers)	Workplace (>200 workers)
Gloves (pairs)[2]	2	2	10	25[3]	50	100	200
CPR mask	1	1	1	1	1	1	1
Tape (roll)[4]	1	1	2	1	2	4	8
3"x3" sterile gauze pads	4	8	20	4	12	48	96
4"x4" sterile gauze pads	4	8	20	2	2	10	20
Trauma dressing (ABD pad)	0	1	2	2	2	6	10
Non-stick gauze[5]	4	8	20	2	2	10	20
Roll 2" gauze	1	2	5	2	4	8	
Roll 4" gauze						8	16
Adhesive bandages	20	40	50	12	24	48	100
Antiseptic solution[6]	1	1	1	1	1	1	1[7]
Antibiotic ointment[8]	1	1	1	1	1	1	1
Triangular bandages	2	4	4	1	6	12	24
Safety pins[9]	10	20	20	10	10	20	20
Paramedic Scissors	1	1	1	1	1	1	1
Item	Home	Car	Wilderness	Workplace (<5 workers)[10]	Workplace (5-15 workers)	Workplace (15-200 workers)	Workplace (>200 workers)
Tweezers	1		1	1	1	1	1
Instant hot & cold packs	1 of each	1 of each	2 of each		1 of each	1 of each	2 of each
First Aid guide[11]	1	1	1	1	1	1	1
Pen/pencil	2	2	2	2	2	2	2
Paper (or report forms)[12]	2	2	10	5	10	20	50
Splint[13]	1	2	2		1	assorted sizes	assorted sizes
Splint padding[14]	2	4	4		2	2	10
Waste bag[15]	1	1	1	1	1	1	a biohazard recepticle and/or a sharps container
Phone numbers[16]	1	1	1	1	1	1	1
Thermometer	1		1				

Sterile saline solution or bottle of water		1	1				eyewash station
Waterproof matches (box)	1	1	1				
Whistle		1	1				
Flashlight (and spare batteries)	1	1	1				
Penknife		1	1				
Certifications[17]				Proof of currency for trained staff	Proof of currency for trained staff	Proof of currency for trained staff	Proof of currency for trained staff
Log book[18]				1	1	1	1
Item	Home	Car	Wilderness	Workplace (<5 workers)[19]	Workplace (5-15 workers)	Workplace (15-200 workers)	Workplace (>200 workers)

An example of a first aid kit for a specific purpose: road rash.

A vintage first aid kit.

External links

[1] *First Aid Requirements*, R.R.O. 1990, Reg. 1101 (http://www.canlii.org/on/laws/regu/1990r.1101/20071015/whole.html) is being used as an example; check the relevant legislation.

[2] Using non-latex gloves is important, especially in workplace kits, since you are more likely to be giving treatment to someone who you don't know. Nitrile is always best.

[3] This is not required, but is recommended

[4] Transpore (3M) is great.

[5] Look for Telfa; it is the most common variety.
[6] Depending on your location, you may not be legally permitted to use this, except with family members. In that case, eliminate it from workplace kits.
[7] This must be *ethyl alcohol*
[8] Depending on your location, you may not be legally permitted to use this, except with family members. In that case, eliminate it from workplace kits.
[9] If your triangular bandages come packaged with safety pins, do not bother stocking extras. These are for use with slinging, so you'll always use triangulars and safety pins together.
[10] *First Aid Requirements*, R.R.O. 1990, Reg. 1101 (http://www.canlii.org/on/laws/regu/1990r.1101/20071015/whole.html) is being used as an example; check the relevant legislation.
[11] For workplaces, the legislation may require a certain guide. For example, many Canadian jurisdictions require St. John Ambulance guides.
[12] Workplaces should always use pre-made incident report forms. An example form is available. Workplaces are also required to keep these reports on file.
[13] Sam Splints are the most versatile and easy-to-use variety. Avoid using splints for specific body parts; the best can be resized to fit arms and legs. Unless you're stocking a kit for a sports team, you're unlikely to require finger splints.
[14] If using Sam Splints, splint padding is not required.
[15] This will be used to dispose of biohazardous waste, so it must be impermeable to fluids.
[16] These should be on a durable card in legible writing or type. You should include EMS numbers as well as poison control, non-emergency ambulance, a cab company, and any emergency contacts (for home kits).
[17] Proof of current certification for all on-duty first aiders is often required by law, but is good practice regardless
[18] This should log the date of the most recent inspection (and preferably a history of inspections; inspections are to be done at least quarterly) and the signature of the person who did the inspection
[19] *First Aid Requirements*, R.R.O. 1990, Reg. 1101 (http://www.canlii.org/on/laws/regu/1990r.1101/20071015/whole.html) is being used as an example; check the relevant legislation.

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